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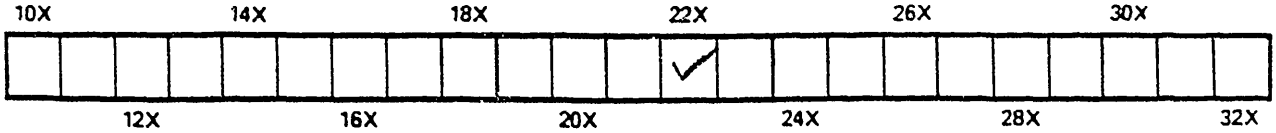

THE

# CANADIAN AGRICULTURIST,

AND

# Transactions

OF THE

## BOARD OF AGRICULTURE OF UPPER CANADA.

VOL. V. TORONTO, AUGUST, 1853. NO. 8.

### TOWNSHIP OF HAMILTON FARMERS' CLUB

The May meeting of this Club was held at Ball's Inn, Coldsprings, when a large number of leading farmers were in attendance. Among those present we observed Mr. Wright, the President, Mr. Riddell, the Secretary; Messrs. Richardson, W. Weller, M. Eagleson, W. Eagleson, G. Ley, J. Sutherland, D. Sidey, J. Mason, Mr. Perkins, Mr. H. Roddick, Mr. MacIntosh, &c., &c.

#### AGRICULTURAL EDUCATION.

Mr. RICHARDSON, on whom had devolved the opening of the discussion, apologized for not being prepared, as his time had been wholly taken up by his duties as Assessor. The President, however, had readily consented to supply the want, and he would therefore open the discussion.

The President, Mr. WRIGHT, said that he had not expected to be called upon to discharge the duty of opening the discussion. He had, however, consented, at the request of his friend, Mr. Richardson, and would do the best he could in the matter.

The subject that engaged the attention of the Club at its last meeting, and was to have further consideration to-day, is Agricultural Education, and is of that character that some people may suppose to be above the comprehension of farmers generally. I am afraid the supposition comes too near the truth; for, as a class, it must be confessed we have not kept pace with the mechanic, or indeed with any other profession. Science has offered her services in vain for fifty years; the principles laid down for the guidance of the *practical* farmer have been laughed at; book-farming has been scouted and denounced; and every attempt to improve our practice and brighten our prospects has been baffled by the obstinacy of those for whose special benefit the man of science has laboured so assiduously,—nay, more, for whose special benefit *a new science has been brought to light.*

The supposed monopoly of practical knowledge by the unread agriculturist is purely imaginary—a creed invented by himself, the very opposite of truth. Almost every profession or calling now practised has had to wade through and defend itself from the same absurd supposition; and it may be safely asserted that in whatever art, theory, as such, is by habitual allusion dishonoured, the average of education is low, and the art itself in its infancy. The progress of an art must depend upon the sciences which govern it, and all accidents of natural circumstances are equally subordinate to natural laws, which it is the progress of science to unfold. The training to the practice of an art without instruction in its principles is not education, but simple apprenticeship. The theory of an art is nothing more, and should be nothing less, than a complete history of these principles so far as they are known, in a form the most convenient for acquirement. Before you trust a tool in the hands of a child, the mind is capable of receiving knowledge which it can never afterwords receive so easily or remember so attentively. The child that would be useless at the plough might be so employed that all the conditions of his future life would be raised and benefitted. Knowledge is capital in the most compact and available form in which it can exist; it can never be lost by accident; it is its own security, and will not be squandered intentionally. There is an idea not uncommon among the less informed of the class to which we belong, as well as among other classes, that anything like book knowledge disqualifies the possessor for the ordinary concerns of life. No idea can be more thoroughly erroneous. It is true books cannot teach the use of books, but it is for this very reason that the knowledge they do contain should be laid in for digestion before the hurry of business life commences. If the child asks a

question of his teacher, and he has to consult his books, he might be looked upon as no teacher at all, because when he is expected to be learned he is found to be learning, and an unfavourable conclusion both to books and the man thus hastily drawn,—the expectation being that *common sense* would have supplied the required answer, for *common sense* in any calling is nothing else than a knowledge of the principles ready seasoned in the mind, and capable of clear and handy application. To too many farmers the useful science of arithmetic is a mystery; and when it is considered how necessary a knowledge of figures is to give system and accuracy to every transaction, it is to be lamented that when there is so much facility for acquiring even this wonderfully useful part of education, it is so much neglected. I consider there is nothing more conducive to success in any business than a thorough training in the art of keeping accounts. Bookkeeping is just as necessary to the farmer as to the merchant. A profit and loss account is the "compass" in business; by it only can we avoid the losses and crosses of haphazard management. I do not intend following this subject further in the meantime; it may at some future meeting of this Club be profitably pursued. I think our intention in taking it up was, not to point out the way or the means, but simply to strengthen the hands of those eminently qualified gentlemen engaged in devising means to ameliorate the condition of those who have been too long hewers of wood and drawers of water.

ON THE USE OF GYPSUM.

I purpose directing your attention to another subject, which at this particular season will call loudly for immediate consideration: "The proper time to apply gypsum or plaster; the quantity necessary to effect the greatest benefit; with other details connected with this wonderful fertilizer. I am quite sure you are all ready to entertain it immediately, but before solving the question practically, and to allow a little time for reflection, it may not be amiss to glance at some of the conclusions at which scientific gentlemen have arrived regarding its mode of action. Although gypsum is largely used in this country as well as at home, there is great difference of opinion as to its value as a manure, and amongst learned men contrary theories put forward as to its mode of action. Sir H. Davy held the opinion that its influence on clover and plants of that description is due to their naturally containing a large proportion of sulphate of lime (gypsum or plaster), and on examining the ashes of these plants, he found they afforded considerable quantities of it, and concluded that this substance might form a necessary part of their woody fibre, and that where gypsum failed to produce good results the soil naturally contained so much of the salt as to render an artificial supply unnecessary. He did not regard gypsum as a source of sulphur peculiarly, but considered the whole salt beneficial to a certain class of vegetables. Liebig "explains its action on the grasses by reference to its power of converting volatile carbonate of ammonia into the more fixed sulphate of the same base; when sulphate of lime is mixed with carbonate of ammonia all smell soon disappears; by a mutual interchange of elements carbonate of lime and sulphate of ammonia is formed, which latter, not being volatile, remains in the liquid. To this power, then, of fixing ammonia, he attributes the action of gypsum as manure, and that in applying it to the land we in fact manure with an ammoniacal salt. Bousingault, another celebrated chemist, propounds another theory, and criticises with great ability both the preceding explanations, and after fully investigating Liebig's theory concludes that it is impossible to accept his explanation. He shows that the theory of Sir H. Davy, that it (gypsum) acts beneficially on those plants which are rich in the salt is so far consistent with the nature of the plants in question, that the artificial grasses being rapid in their growth would require a ready supply of the mineral substances to them; that gypsum would always form a solution of constant strength, being always dissolved to the extent of 1.500 part of water contained in the soil, and would, under any alternations of drought and wet, be ever ready to administer to the necessities of a rapid vegetation. He proves that the quantity of lime absorbed by clo er manured with gypsum was out of all proportion larger when compared with sulphuric acid introduced at the same time, and comes to the conclusion that gypsum acts merely as a means of supplying lime to clover and plants of a similar kind. Thus you see how the most learned men differ as to first principles. We may, however, console ourselves with the fact, that, if the cause be mysterious, the effect is as clear as noon-day; and whilst scientific men fight about the first, we try to settle the grand practical points—the time to apply it to the various crops, and, by an expression of opinion, the quantity necessary, and so on.

As regards the time of applying gypsum to clover meadow, my opinion is that in nine cases out of ten it is applied too early: corroborative of this I quote an experiment by Prof. Korte, which must carry considerable weight coming from so high authority and under the tests of *weight* and *measure*. An equal quantity of gypsum was applied on three equal parts of the same field at three distinct times, a fourth part left undressed, the result was proportionally as follows:

| | | |
|---|---|---|
| Undressed, | | 100lbs. |
| Top-dressed, | 30th March | 132 " |
| " " | 13th April | 140 " |
| " " | 27th April | 156 " |

Clearly showing a marked difference, when applied after the leaves are well developed, which result may arise from the fact that gypsum laid on the leaves of plants is converted into carbonate and its sulphuric acid absorbed. I have personally made no experiment with gypsum that would justify me in giving an opinion as to the quantity most suitable for meadow, my practice is one barrel to two acres, sown immediately before rain, if possible, and in ordinary seasons like the present, about the 10th of May. Although foreign to our subject I would remark that it will be found good economy to use clover seed much more liberally than is usual; 10 or 15 lbs. per acre is little enough, yet a good bottom and very little plaster will do a great deal of good, besides the immense quantity of vegetable matter easily decomposed for manure, the clover will afford for the succeeding crops. On Indian corn, plaster can be beneficially applied in the hill, and sown after the corn is a foot high its effects are magical. That it adds to the yield of grain I am not prepared to say. Last year I applied it to my potatoes sown in the drills previous to covering up, and on the plants after they were above ground. The last plan did no good whatever, as I found by experiment. I had no rotten potatoes and what remains of my crop are at this day as sound as ever, and the quality excellent. As a manure for the pea crop, plaster is unparalleled, but should be used with caution, and only on very poor soil, or on the short strawed varieties, as it is apt to induce a superabundance of straw. I trust, gentlemen, to be enlightened on some of the points which I have mooted, and will by expressing your opinions freely not only confer a benefit on those present, but, through the press, on our club and on our brethren throughout the length and breadth of our land. He concluded by speaking in high terms of rolling the *seed* sets of potatoes before planting in plaster, giving each piece a coat as it were of white-wash. This plan had been found to work admirably in the States as a preventative of the rot. He alluded to the success Mr. Campbell had obtained, by planting alternate rows of Indian Corn and potatoes. Mr. Campbell took a field of eight acres, on six he planted potatoes and corn—put three rows of corn, then three rows of potatoes alternately over the whole piece—the two acres he put in carrots, and from the whole piece he had 1510 bushels carrots, 180 bushels of corn and 900 bushels of potatoes. He (Mr. Wright,) said that he did not understand how this was done, but supposed that the corn sheltered the potatoes in their early stage. He concluded by requesting every gentleman present who had experience in using plaster to give his brother farmers the benefit of it, not only to those present, but to others throughout the country. He hoped that that feeling of diffidence which had been observed at previous meetings would not prevent those present giving their views.

Mr. SIDEY said he generally sowed plaster when the clover was opening out, and on peas, barley and oats; he sowed half a bushel to an acre of peas; he did not agree with the President as to the quantity of clover seed to the acre, he thought 7 or 8 lbs enough, he sowed very little plaster on peas, found a great increase in grain and straw; put plaster on Indian corn after the first hoeing, used a barrel on three acres of clover.

Mr. SUTHERLAND said he was not so sanguine as some were regarding plaster. On his description of soils (very heavy) he found it profitable to sow on new meadow. He, however, had not tested the matter thoroughly. On old meadows he thought that although plaster gave it a start in the spring it did no permanent good. He would not feel warranted in sowing plaster on old meadows on his land; indeed it was not found on the front road between Cobourg and Port Hope to improve the grain, as it had the effect of making more straw and less head. He would sow plaster on clover just as the leaf expanded. In Baltimore, where there was a light sandy soil, he had heard that plaster did most good when sowed in the Fall.

Mr. W RODDICK said he had not used much plaster on his land, as it was heavy and he thought it succeeded best on light soils. He had tried putting it on potatoe seed when cut with good results. On peas, the crop was increased one-half on light soils by using plaster. His practice on heavy land was to sow on clover only the first year; plaster did not do much good on timothy; had used plaster on turnips and carrots with excellent results.

Mr. MACINTOSH said that some years ago he made an experiment in sowing plaster on peas. The young man he had in his employ sowed the plaster in one ridge and left one unsown and the consequence was that the field presented a very remarkable appearance. There was a remarkable difference between the crop which had and had not plaster.

Mr. EAGLESON sowed a barrel of plaster to two acres on clover first crop, did not sow after on peas, he thought it increased the crop 50 per cent.; did not sow on clover the second year, because he wanted the timothy to come up, and he did not think that it did much good to timothy; it was on the early pease that he used

plaster, not on the long straw pease unless sickly on potatoes he applied it after they were up, but could not see it did much good. Neither in his opinion did it do much good to oats or wheat; ashes he found very good for oats and wheat; was doubtful as to its being of service to Indian Corn.

Mr. MASON had sown 75 barrels of plaster in one year, 1 brl. to 3 acres, had sowed both in Spring and Fall; he would sow the very moment the snow was off the ground, this was the practice he had followed and which he intended to follow, as it was in his opinion the best; he had tried lime and ashes, everything, in fact, but would give the palm to plaster; he looked upon it as good for carrots and turnips.

Mr. WELLER stated that he had been brought up a farmer, but from poverty and laziness had to quit it; but latterly he had taken to farming again, and with the help of modern theory and his own experience he trusted to make his farm equal to any other in the country; he had tried plaster on his farm on an old meadow, but it had not succeeded very well; he thought that on new and light soils it would be found serviceable. He trusted, as he had again become a farmer, he would have other opportunities of addressing them.

A vote of thanks was given to Mr. Wright for his essay.

The next meeting of the Club was decided to be on the second Saturday of June at one o'clock.

The subject for discussion to be "Lime as a Manure."

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### LIME AS A MANURE.

At a meeting of the Farmers' Club of the Township of Hamilton, held at Perkins's Inn, Rice Lake, on Saturday, June 11th, 1853. Patrick Rose Wright, Esq., President, in the Chair.

Present—J. Wade, Bourn, Arnott, Fortune, Sutherland, Weller, J. C. White, W. Eagleson, Richardson, McIntosh, Ball, Henderson, Ferguson, Burnet, Ash, Capt. Thompson, &c., &c.

Mr. WRIGHT stated that the subject for discussion was *Lime as a Manure* and as there had been no one appointed to prepare an introductory paper, he should introduce the subject by a few extracts from Professor Johnston, after reading them he stated his own experience of lime in this country. He had applied lime to two fields, to one piece of about three acres of very strong clay soil: when in green crop it was very troublesome to work, he applied air slacked lime to it at the rate of eighty bushels to the acre, he applied it to the land when it was in green crop, he sowed the land with lime and he had more wheat from that piece than ever he had before from the same ground; since then it had been meadow, and instead of a ton or a ton and a-half to the acre, he had cut two and a-half tons from it every year.—On the other field, which was land that had been very hard wrought, some that he had lately bought, he applied about forty loads of barnyard manure, and eighty bushels of lime to the acre. His crops from the land had been good, particularly the clover, it surprised himself. He thought that it would pay to apply lime even to undrained clay land; it would pay on grain but more particularly on grass. He thought lime at a York shilling a bushel was the cheapest manure we could apply, as its effect was lasting, not like plaster which was only beneficial for one or at most two years, whereas he thought lime was beneficial to the land for many years; to have his lime air slacked he bought it in the fall and kept it in a dry shed all winter.

Mr. JOHN WADE said he would state his experience with lime. Lime was one of the greatest fertilizers in Great Britain, and people thought it would do as much good here as there, but from his experience he thought that one bushel of Plaster would do as much good to the acre as ten pounds worth of lime. Some years ago there appeared a letter in the Agricultural Journal from Professor Johnston, stating that the cause of so much rust on our wheat was the want of lime in the soil, and that lime was an antidote of rust—but he found that it was no such thing. Some years ago he burned several kilns full of lime as he had plenty of lime stone on his farm—he applied it to his fallow land after the first ploughing at the rate of fifty bushels to the acre, and he saw no benefit from it whatever. As long as he could apply plaster to land at a cost of one third of a dollar an acre he would never think of applying lime, as he thought in our present circumstance it was throwing away time and money for no use, as one bushel of plaster would produce as much as eighty bushels of lime. A number of years ago he had limed one half of a fifteen acre field, and to this day he had seen no difference between the limed half and the unlimed. He drew his lime from the kiln and let it slack in small heaps in the field, he thought that lime might perhaps do more good in the back parts of the township than with them on the front, their land did not contain so much lime-stone rock.

Mr. J. SUTHERLAND, said I have considerable to do with lime as a building material, but have had little or no experience of it as a fertilizer. I have had convincing proof how ever on many occasions of the advantage of slacking the lime produced from quarry stone immediately on coming from the kiln—for I am well aware the same amount of good lime either as a fertilizer or for building purposes is more readily procured than by the air slacking process. With field or lake shore stone the case is different, the active property being longer retained. I have seen many instances of well burnt lime from quarry stone being rendered quite inert by lying unslacked for a few months, the only remedy in such cases being boiling water applied instead of cold, which is usual as in most cases, and even this every experienced builder knows will not produce the same amount as slacking immediately from the kiln.

These remarks of course are only applicable in certain localities where the stone used, as in Cobourg, is only in a state of formation, the Kings-

ton quarry stones for instance, retain their active properties as long as any.

Mr. BALL said he never had any experience of lime as a manure.

Mr. FERGUSON, said that he never used any lime in this country, he thought that lime would produce very little effect on undrained land; at home he had laid down lime in small heaps and covered it up with earth, then after the lime had slacked had laid it on turnips and potatoes in the drill. He thought that they used rather more bone dust and guano now in Scotland for turnips than lime; guano was a more immediate fertilizer than lime, but lime was the most lasting in its effects.

Mr. WM. EAGLESON, said he had never applied any lime in this country, though he had often seen it applied at home, they applied it both by itself and mixed with earth as a compost of about one-sixth lime, and applied this compost to their green crops, the lime they merely applied to *lea*, previous to breaking up for oats. He thought that they had more limestone in their land in the back parts of the township than in the front.

Mr. R. FERGUSON, said he had seen a great deal of lime applied in Scotland both on fallow land and potatoes and turnips in the drill, it had a highly beneficial effect on land there, and he saw no reason why it should not do as much good here. They generally laid the lime down in small heaps on the field and covered it up with soil, then when it had fallen to powder they spread it on the land, the quantity put on the acre varied with the kind of soil, if the land was light they put on less, if the soil was heavy they put on the more. He thought about thirty barrels of lime to the acre was their usual quantity [a barrel of lime was about 2¼ bushels of our measure] if he could get lime at sixpence a bushel he would prefer it to plaster, if the land was in a proper state.

Mr. DAVIDSON said, Mr. President,—Lime and I are about entire strangers; therefore, I can say little about it as a manure. He agreed with almost everything Mr. Wade had said; that, considering the high price of lime and labor, it was almost useless to us as a manure. He thought that on old worn lands lime might possibly do good when preparing the land for wheat; but that, on our new soils, with proper management, dung and plaster would give us far better crops than lime. He thought that if we managed and wrought our land well, we could extract good crops from it without lime. His impression was that lime would not pay to apply to land.

Mr. MCINTOSH said he had no experience in the application of those costly manures here, though he had seen a vast deal of lime applied at home. Mr. Wade had said that lime did little or no good on clay soils. Now, he (Mr. McIntosh) had seen thousands of bushels of lime applied to the very strongest clay soil of the carse of Gourie. He believed they thought lime there to the land almost indispensible in the preparation for wheat. He thought that on our old worn lands lime would revive it for wheat, especially on clay soils.

Capt. THOMPSON said he was glad to have an opportunity of offering a few remarks. He would just congratulate the Farmers on their appearance here to day. Lime and its proper application was a subject that had interested the farmer greatly for the last twenty-five years. In the West of Ireland, where he came from, it had the most beneficial effects. In reclaiming their waste land, it was indispensable. He had known lime there, drawn sixty-two miles, to apply to the land. Their method of application was just to remove the turf, and then apply the lime to the land. Their soil there was a clay—their subsoil a hard gravel. In that part of the country, he had known lands not worth one shilling an acre, and in one year, with draining and liming, converted into good farms. He had used lime here in a moderate manner; he had applied some to two fields. and he found it had a very beneficial effect—not for one year only, like plaster, but for several years. He had known lime mixed up with potato tops, earth, &c., and applied to the land—it did well for green crops. A friend of his bought a farm in Lower Canada, which was literally a farm of thistles; he mowed the thistles the first year, and mixed them up with lime and a small proportion of salt, and applied the compost to the land; now he had one of the most beautiful farms on the Island of Montreal. He thought the caustic properties of lime helped to destroy thistles on land.

Mr. ASH said that he had heard a great deal about lime and plaster, and their application. Now, he held that it was neither lime nor plaster, but proper cultivation and a good season, that secured us good crops. He believed that the very best manure for our soils was to cultivate them well. If the land was very much exhausted, he would seed it down with clover, and let it lie for a year or two. He thought that plaster was as good for clover as anything we could get.

Mr. ASH, Jr., said, as for lime, he never had any experience with it; but plaster, he was sure, had a good effect for more than one year. In a field belonging to himself and his father, the soil of which he believed to be every way the same, last year he applied plaster to his half, his father applied none to the other half; now this season his half was fully six inches higher than his father's.

It was moved by Mr. Wade, seconded by Mr. Eagleson, that the next meeting be held at Dickson's Inn, Court House, on the second Saturday of July, at 2 o'clock, and that the subject for discussion be, whether it is most profitable to general cropping to plough in the fall or the spring. Mr. James Sutherland to introduce the subject.

WALTER RIDDELL,
*Secretary.*

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Ground once well plowed is better than thrice poorly. But many do not think so.

Dr. Franklin says: "If every man and woman would work four hours a day at something useful, want and misery would soon vanish from the world, and the rest of the day might be leisure and pleasure."

## WELLINGTON FARMERS' CLUB.

The usual meeting of the Club was held at the British Hotel in the town of Guelph, on Friday June 10th, the President, Thomas Saunders, Esquire, in the chair. The subject for consideration was, "The best mode of cultivating Fall Wheat," which was introduced by Mr. McCrea, as follows:—

MR. PRESIDENT AND GENTLEMEN,—

In commencing the discussion of this subject. I make no pretension of communicating anything new to those who hear me; and shall aim more at impressing on all the benefits which would result from their carrying into practical operation the most improved system of cultivation known to themselves, than is generally done. Men don't always do wrong for want of knowing the right, but often from the fact of the wrong being attended in the first instance with the least outlay or labor.

The cultivation of wheat varies in different countries, from the necessity of varying the other crops to be grown in the rotation, so as to suit the climate and market. Thus, it would be found impossible in Canada to carry out generally the four or five course shift, having one-fourth or one-fifth of the land in green crop annually, because we cannot feed any part of that crop on the ground, and the expense and labour of housing and feeding in winter is greater than the returns would warrant on so large a scale; neither does the green crop come off in time for sowing Fall Wheat, which has been, and probably will continue to be, on all favourable soils, the principal crop. Under such circumstances, it is necesssary to strike out another course, which I will endeavor to explain.

Taking, then, a soil either naturally favorable, or made so, as in many instances it is capable of, by artificial means—such as under-draining, subtoiling, and the judicious application of correctives, as lime, marle, clay, or sand, in such quantities as may be needed by the peculiarities of the soil—the next step for the enterprising cultivator, who is not above gleaning instruction from the theories of others, combined with his own experimental and practical knowledge, will be to prepare the ground for the reception of the seed; and this will naturally lead to the consideration of a proper rotation of cropping, such as will keep up a uniform breadth yearly of the various crops he wishes to grow, and yet keep his farm in a good state of cultivation.

I will assume that it is divided into as many equal parts as will suit the particular rotation required. To attain this, I would vary somewhat from the fifth course shift, and grow two crops each of wheat, peas and oats, and four of clover and grass, with one naked fallow in eleven years. Thus:—

| | | |
|---|---|---|
| 1st year | —Fallow from sod. | |
| 2nd do | —Wheat | manured for one year. |
| 3rd do | —Peas | |
| 4th do | —Oats and Seeded. | |
| 5th do | —Clover & Grass | plaster if mown. |
| 6th do | — do do | |
| 7th do | —Peas on Sod. | |
| 8th do | —Wheat with lime. | |
| 9th do | —Oats and seeded. | |
| 10th do | —Clover & Grass | plaster if mown. |
| 11th do | — do do | |

At the end of this course, the land has been once manured and once limed with from 60 to 100 bushels of lime per acre, and will be in a *better* state than if worked on the five course shift, and manured once in the course with the spare coating, which would be available, and will amply repay the extra charge for lime, especially as it is found very difficult in this climate to make a sufficient quantity of manure for garden, orchard, and the land appropriated to roots. In the above division, it will be observed, there is no mention of roots; but this does not *prevent* a sufficient portion of the farm being appropriated to these *very necessary* crops, and they are only omitted here, because they would interfere with the rotation proposed on a purely fall wheat farm, and, as is generally the case, the orchard and one or more fields near the homestead, will be found more convenient for these purposes.—The wheat crop will thus either follow a naked fallow, or peas grown on a sod of a two years layer. In the former, I would plough once (in the spring in preference to the fall) a furrow six to eight inches deep, and use the cultivator as often as may be needed during the summer to keep down grass or weeds, running it shallow at first, so as not to disturb the grass under until the sod is in that state of decomposition considered necessary when cross ploughing is practiced, when it may be worked to the depth of five or six inches. In some soils it will be necessary to plough a seed furrow to facilitate surface drainage; but in porous sub-soils, the cultivator will do all the work after the first ploughing. In ploughing the sod for peas, such a plough should be used as will cut a furrow with a good shoulder, and pack tight, so as to cover the seed well and prevent the grass springing, that no trace of the furrow may be found after the peas are harvested. One good furrrow should then be ploughed for the wheat, and the lime spread and seed sown as quickly as possible, harrowing all in together.

The best time for sowing will generally be the first half of September, the plants requiring the intermediate time before the setting in of the

winter to get sufficient root to protect them against heaving in the spring.

Too much care cannot be taken in selecting pure seed from a different soil to that on which it is to be sown, and as experience has proved that even pure seed will occasionally produce a crop with enough smut to injure the sample, care should be taken to prepare it by dressing with either vitrol or brine, I prefer the latter, made strong enough to bear an egg, the light grain and smut balls to be floated off, and the seed laying in the steep from 12 to 24 hours, according to its hardness. If the brine is at all discoloured, it should never be used for steeping a second parcel; when required for immediate sowing, a little quick lime will make it scatter. Much difference of opinion prevails as to the quantity of seed per acre, but this should be varied according to the soil and time of sowing. Could the drill be used it would effect a great saving of seed, as well as secure the crop in a great measure against risk from rust and winter-killing, preventing the former by the circulation of air between the rows, and the latter by the small intervening ridges constantly working down as well as giving an opportunity of stirring between in spring, thereby pulverising the soil, and giving it an absorbent power to attract moisture and food from the atmosphere.

In broadcast sowing, the seed should be sown directly after ploughing, so that it may drop into the angles of the furrows before they are washed down by the rain; or if sown on the level, cultivated in, all necessary surface drains opened, and well harrowed in the spring, as soon as the land is sufficiently dry. I would recommend cutting rather green, the sample being heaviest, the loss less from handling, and the yield greatest per acre, besides gaining a few days more time in harvest. I hope to see reaping machines introduced next harvest, as many of our farms are now sufficiently free from stumps and stones to permit them to be worked, their superiority over the cradle being cleaner work, less grain shelled, and a more uniform sample obtained in consequence of the whole being cut in nearly the same stage of ripeness. Another very useful implement has recently made its appearance, for gathering grain either after the machine or cradle, intended to save the binder from stooping; it is made with five or six teeth set on two wheels, intended to run under the swathe and lift up a sheaf at a time; it is said to shell less grain and do more work than the common rake. Stoking is a very particular part about harvesting; the sheaves should be small, of a uniform size, and each pair set up with a sufficient space at the bottom to allow free passage for the air up the centre of the stook, and brought together so as to be as sharp along the top as possible, that the cap sheaves may cover all the ears. Carting is usually commenced too soon, more grain being injured in the barn than in the field, as will be seen by examining the samples at our mills, or looking over the returns of sour flour every year sold in the foreign markets.

At the close of the address, the Chairman expressed his high approval of the views put forth, which he said would do more to promote the interests of the Farmer than anything he had previously heard on the subject. Other gentlemen expressed their general concurrence in the views enunciated, and a desire that they should be carried out in practice.

Mr. Harland regretted the absence of Mr. Wright and the Paisley Block farmers, from whom he expected to hear something on the subject. Had he anticipated so small an attendance he would have prepared something in reference to the culture of wheat, which he deemed of much importance. He highly approved of the essay, and held that to be remunerative, land must be well cultivated and well drained.

Mr. Greet spoke of the importance of attending to the influence of springs in drainage, and gave his experience in reference to broad cast sowing and drilling, which was in favor of the former; but subsequent remarks showed that in his case the experiments were not carried on under equal circumstances.

Various opinions were expressed as to the comparative advantages and results of sowing immediately after ploughing and letting the land lie eight or ten days, but the conclusion arrived at was, that at different seasons and under different circumstances the one or the other might be best adopted.

Reference being again made to draining, Mr. Hes spoke of its advantages on his farm and in the neighborhood, whilst others commended it highly whenever practicable.

Mr. Harland said that in the list of premiums offered for the Provincial Show, was one from the Governor General of £20 for the best machine put in successful operation for making draining tiles, which clearly showed his opinion of the importance of the subject.

A general discussion on the best mode of harvesting and housing wheat, which elicited some useful information, terminated the discussion.

Mr. Greet moved, and Mr. Baker seconded, a vote of thanks to Mr. J. McCrea for his essay.

In returning thanks Mr. McCrea apologised for the small amount of attention he had been able to bestow upon the subject, and the very imperfect manner in which it was treated, in consequence of ill-health, from which he was still suffering. It would be observed, that he had referred to reaping and gathering machines, not because he deemed them necessarily connected

with the subject under consideration, but in consequence of their important bearing on the wheat crop with the prospective high price of labor in the Province. Neither did he anticipate that many farmers would purchase such implements, as they were too expensive, but three or four neighbours might club together for the purpose to advantage.

Mr. Smith moved, and Mr. Harland seconded, That the next subject for discussion be, Which is the best breed of Sheep adapted for this locality, and the most advantageous mode of wintering them? and that Mr. L. Parkinson be requested to introduce the subject.

Mr. Harland paid a high compliment to "the Press" of Guelph for its general devotion to the interests of Agriculture, and proposed the health of the proprietor of *The Advertiser*, which was duly acknowledged.

The meeting then adjourned till the second Friday of October next.

# The Agriculturist.

TORONTO, AUGUST, 1853.

## CHEMICO-AGRICULTURAL SOCIETY OF ULSTER

We have been favored, by Mr. KIRKWOOD, with the Report of this valuable Society for the past year. The Annual Meeting appears to have been numerously and respectably attended; in the absence of the President, the Marquis of Downshire, the chair was taken by the Lord Bishop of Down and Connor and Dromore, Vice-President, who introduced the proceedings by some sensible and seasonable remarks on the present state of agriculture in the north of Ireland. His Lordship thought that practical agriculture in Ulster was not keeping pace with arts and manufactures. In the counties of Down and Antrim in particular, he thought but little improvement had been effected in several of the most important departments of husbandry over former days. The Bishop strongly urged the desirableness of circulating the Society's *Journal* as widely as possible among the tenant farmers.

From the Report of the Council, we learn, that the Society has been in existence seven years, and made the first effort to render the application of scientific principles available to the improvement of Irish agriculture. It has been very successful in introducing new and profitable fertilizers, and in detecting and preventing frauds therein. Much of the recent improvements effected in the culture and preparation of flax, both in Ireland and elsewhere, is fairly attributable to this Society. At the monthly meetings of the Council, a number of interesting and useful papers and reports had been read. In the Laboratory, which is under the able management of Dr. HODGES, a large number of analyses of soils, manures, and materials employed in manufactures, such as bleaching, &c., had been made; with some original investigations of an expensive and laborious nature, that had been reported to the last meeting of the British Association for the advancement of science.

The following observations of J. ANDREWS, Esq., J.P., will be read with interest on this side of the water:—

"Mr. Andrews then proceeded to state the results of some experiments that had been made in chemical manuring, citing instances in which extraordinary quantities of crops had been grown by the judicious application of certain manures. It would be of vast advantage that the fertility of the smaller portion should be extended to the larger portion; and, therefore, it was that any scientific Society which had that for its object, or which would in any way assist in attaining that important object, should be entitled to the warmest support of the public. That the Chemico-Agricultural Society of Ulster had been productive of great benefit in various districts, and had been supported very liberally, there was no doubt. But too much was expected from Societies of this kind. Mankind expected too much, in general; but, although railway speed was a great thing when attained, it was not to be attained in all instances; and the smallest acquisition of knowledge that they could acquire in that Society should, he thought, be considered worthy to be striven for. If, in the course of the whole year, they could elicit one single addition, however trifling, to the present stock of agricultural knowledge, it would be worth striving for. (Hear.) If these matters were duly considered they would be in a better position, and parties would be encouraged to support these Societies. But though they could hardly claim for themselves the honor of having exhibited very great and striking effects, they should not for a moment suppose that the Society had not been productive of very great advantage. He then referred to the experiments and analyses made in the laboratory, and said, that although for a long time they had been aware of the excellent properties of bone manure, no attempt whatever had been made to account for the mode in which it acted upon the soil in the production of the turnip crop; but now

they were fully aware of that, and not only of that, but they had found that economy in its application is to be attained; and assisted by chemical knowledge, they were also made aware that phosphoric acid applied in excess is of no more use than the necessary quantity; that the excess is lost; and that it is only the necessary quantity that is proper and economical; and it was, therefore, that he saw how useful such a Society as the Chemico-Agricultural Society would be, in ascertaining the necessary quantities of that, and of other substances. Flax was now regarded, and justly so, as a matter of the utmost importance to have it cultivated properly. When he was a boy a great quantity of flax was cultivated in his native place; but gradually it was abandoned; and, although increased quantities of flax had been grown throughout the country of late, much of it was cultivated ignorantly, but much more of it properly.—However, it would be evident that the demand for the Chemico-Agricultural Society would continue. Mr. Andrews then proceeded to instance experiments made by him with kelp, and bone manure, according to a formula supplied him by Professor Hodges, and said that he had arrived at astonishing results, and that he felt certain that by means of these manures they would be able to supply in this country a substitute for that liquid manure which was in such general use in Holland and in Belgium, and which, though it was most desirable it should, it was not probably it would ever be introduced into this country. From his own experience, he was satisfied that the experiments and analyses made in the laboratory were most important, and should be upheld; and that the empirical and absurd systems adopted formerly should be exploded. For these reasons, he thought that institutions of this kind should be most warmly supported by the public."

Professor McCosh, of Queen's College, the talented author of an able treatise on the "*Divine Government*," in proposing a resolution, mentioned the results of his observations in his native country, Scotland, and begged it to be understood that in any observations which he intended to make he should not be supposed to institute any invidious comparison with any other country, nor to mean to assert that what had been successful in Scotland would be successful in every detail in Ireland. He said:

"He said he believed that that could not be said to apply, because the two countries were different —different in the first place in the education of the people, and in the second place in the relations in which landlord and tenant stood towards each other. The people of Scotland received their education, for the most part, in the Parochial schools, and when any new thing was proposed they received it with caution. For instance, anything told them by Doctors of Agriculture—(loud laughter)—was always carefully considered before being received. He (Professor M'Cosh), knew a man to travel not less than 150 milen in Scotland to see a new experiment in Agriculture. If this was successful, it would be reported to the local Association—and they were very numerous in Scotland, comprising from one to three or four parishes—then some of the influential members made the experiment again, and so the advantage of the discovery spread. As to landlord and tenant, he would say, without wishing to infringe on any debateable ground, that he was at one time of opinion there ought to be a great deal of coming and going between landlord and tenant; but experience had convinced him that the landlord should know what rent he was to get, and the tenant what rent he had to pay; and that the sooner the thing was reduced to a commercial transaction, of which the entire could be committed to paper, the better for both. Then, when the landlord would feel disposed to confer a favour, it would be a favour indeed; and, if he chose not to do so, there could be no pretence for grumbling. In Scotland, few, if any, farmers would enter on the cultivation of land without having a written agreement; and in Forfarshire, of which he could speak with some confidence, the rents latterly were raised, on the expiry of the leases, from five to ten per cent., and the farmers consented to the increased rent; and when asked why they were able to meet the increased rent, they said that they had latterly been draining their lands and improving their farms, and using a better system of tillage, and that it was owing to the increased knowledge, and to the application of science to agriculture, that they had been enabled to meet the additional burdens placed upon them The learned Professor, after some further remarks proposed the resolution."

The Rev. Dr. Montgomery made an eloquent speech, in which he attributed much of the agricultural improvement of Scotland to the peculiarities of its soil and climate, on the principle that "Necessity was the mother of invention," and to the long established parochial system of Education.

It is truly gratifying to find, as on this occasion, (would to God such occasions were frequent in Canada) the union of Clergymen of different denominations; a class of men who have it in their power to do much for agricultural and educational improvement; and as Dr. Montgomery well remarked, however they may conscientiously differ in other matters, can co-operate for the common good.

We are happy to find that Mr. Kirkwood attended the meeting and brought Canada before its attention. The report of proceedings alludes to this circumstance in the following terms:

"Mr. Kirkwood, Agricultural Commissioner from the Canadian Government, was then introduced by Professor Hodges, and laid some sta-

tistical returns before the meeting, showing the resources of that part of the American Continent, and its progress in commerce, arts, and agriculture. He also exhibited specimens of flax grown there, which he confidently asserted would not be excelled by that of Russia, which Canada looked forward to compete with as a flax-growing country."

We doubt not Mr. Kirkwood is producing in the United Kingdom a favorable impression of Canada, and his mission should be regarded as one of the first fruits of a Government Department of Agriculture.

## THE LATE EARL OF DUCIE.

We promised in our last, in noticing the the decease of this lamented nobleman, to give some slight account of him as an agriculturist.

The Earl of Ducie descended from an ancient family, connected by marriage with the Mortons, a family of long standing in Staffordshire. In tracing the line of his ancestry, we come to find that, independently of his individual taste and determination, there was every promise of his taking high rank as an agriculturist. "Somewhere," observes a writer in a late number of the *Farmers' Magazine*, "about the commencement of the seventeenth century the then head of the Ducie family had entered so fully into the business of the farm, and advanced so far before the spirit of the times, as to employ the celebrated Jethro Tull as his steward, and to support him in all the experiments and improvements which have made the latter's name so famous. This, however, is so well introduced, and the *'Perseverando,'* motto of the Ducie's—past and present—so well exemplified in a paper read by Mr. Hyett, of Painswick, to the Gloucester Farmers' Club, in 1842, on the benefits which agriculture has derived from Science;" after speaking of Tull's drilling and horse-hoeing husbandry, which gradually produced such salutary and important changes in the agriculture of England, the writer refers to the following quaint passage in the *Gentleman's Magazine* for 1764:—"Mr. Tull employed himself assiduously in training servants, and in accommodating the instruments proper for his new husbandry to their limited capacities: and this work he found much harder to accomplish than he at first expected; it was less easy to drive the ploughman out of his way, than to teach the beasts of the field to perform the work. The late Lord Ducie Morton, who followed Mr. Tull, or rather accompanied him in this laborious and vexatious business, had frequently, to correct the awkwardness of his ploughmen, or overcome their obstinacy,—stript himself of his dignity, and put his hand to the plough himself; and yet with all this condescension in his Lordship, and with all the vigilance, activity, and ingenuity of Mr. Tull, who was a most excellent mechanic, they were both forced at last, after a world of money expended to very little effect, to relinquish the project, and to content themselves with farming their lands in the ordinary way, except some small portions of it, which they reserved for further experiments." The example of a nobleman lending a hand in so characteristic a way to encourage in his difficulties one of the most persevering and scientific farmers that England ever knew, was happily not lost upon his descendants.

The late Lord Ducie did not rest satisfied with making himself practically acquainted with the best systems of agriculture and stock raising, but exerted himself in carrying into practice on an extended scale the most correct principles of husbandry for the benefit of others. The district in which his Lordship resided (Gloucestershire) was more than commonly backward in agricultural improvement, and it occurred to his sagacious mind that a farm conducted on the best modern principles of good husbandry would be the most efficient means of diffusing a knowledge of, and exerting a desire for, an improved system of agriculture. Hence he commenced a number of years since the celebrated Example Farm at Whitfield, and placed it under the management of Mr. Morton, the well-known author of the best treatise in any language, on the Composition and Distribution of Soils. The main object which his Lordship had in view in undertaking the Whitfield farm was to show to visitors, and more particularly to farmers living in the immediate district, how land in a very low state of cultivation and productiveness might be profitably converted into one of very opposite character. Here was teaching by a method which the most stubborn could not well resist,—namely, that of

example. We distinctly remember several interesting particulars of a visit to this farm in the year 1845, when Mr. Morton was conducting it on his own account. The heavy crops of all kinds of grain, roots and grasses; the thriving condition of the live stock; the implements and machinery of the best kinds; the convenient arrangement of farm buildings, and the vast amount of produce annually raised from a farm of not a large extent; all tended to produce an irresistible conviction, that the whole was conceived and sustained by an enterprising and patriotic mind; such a mind as Lord Ducie was well known to possess.

The improvement of implements and live stock must be regarded as the two most important points in the advancement of agriculture; and few men have done more to promote both these objects than the late Lord Ducie. In 1841, he commenced the Uley works, which soon became celebrated for turning out some of the very best agricultural implements ever seen or used in England. The "Uley Cultivator," his Lordship's own invention, (which was figured and described in previous volume of this journal) was of itself sufficient to create a reputation.—The influence of these works by the new and superior implements and machines manufactured there, for many years, produced an effect on the agriculture of the district, and indeed of the country generally, as could scarcely be over stated.

It is not, however, by good buildings, thorough drainage, or any other liberal and judicious outlay that Lord Ducie distinguished himself as a good landlord and a good practical farmer.—Perhaps the very strongest point in his character was the judgment and spirit with which he continued to advance in the quality of his stock. A quick and well trained eye, with a determination not to allow the mere question of price to deter him from purchasing the most perfect animals, his reputation as a breeder soon became established: and his Lordship was in the habit for many years of sending some of the finest specimens of short-horns, sheep and pigs, to the Exhibitions of the Royal Agricultural Society of England, and the Smithfield Cattle Show.—"No man," observes the *Mark Lane Express*, "ever entered with more spirit into the pursuit; while few, we believe—though not always a consequence—will be found to have collected together so many perfect animals."

We learn from the *Express* that the whole of his Lordship's splendid Herd, sheep, &c., are to be sold the latter end of the present month. The Short-Horn cattle comprise no less than sixty head of Bulls, Cows, and Heifers; several of these fine animals belong to the celebrated tribes of the "Duchess" and "Oxford" of the late Mr. Bates, of Kirklevington; also a flock of eight hundred Southdown sheep, from the stock of the Duke of Richmond, Mr. Jonas Webb, the Messrs. Ellman, and other distinguished breeders; together with an unrivalled stock of Pigs.

It may be observed in conclusion, that Earl Ducie was one of the few who originated the Royal Agricultural Society of England, of which his term of office, as President, had but just expired at his lamented death. From his first entry on public life down to the practical consummation of the Free Trade policy, his Lordship was the unswavering opponent of the Corn Laws, and his influence must have materially affected the state of that much vexed question, particularly during its earlier stages. He was also a zealous member of the Evangelical Alliance; a staunch friend of the great principles of civil and religious liberty; and as a man and a christian, his memory will be fondly cherished by all who had the honor and happiness of his acquaintance.

## IMPROVED BREEDS OF CATTLE.

The following portion of a private letter which we recently received from that most enterprising importer and successful breeder of Durham Stock, George Vail, Esq., of Troy, N.Y., we take the liberty to publish in the words of the writer, believing that the facts which it contains will be interesting to a large number of our readers. It is encouraging to be assured that persons of Mr. Vail's high standing regard our humble labours as having aided the important cause of agricultural improvement.—EDITOR.

* * * Your paper, I trust, has done great good in promoting an improved agriculture in your Province. Journals of the character of yours cannot fail greatly to improve agriculture, which is the foundation of all other business occupations.

*Since my great sale in October last*, I concluded not to breed Durhams on my farm for sale, as I made that announcement in my advertisement, if the cattle sold at prices satisfactory. Mr. S. P. Chapman, of Madison Co., N.Y., had previously purchased his stock from me, and desired to purchase four animals at the sale, but they went so high he did not purchase them. He is a good breeder, and on his return home I offered to import for him, or for his use, four Durham heifers from Mr. Bell, the tenant and friend of the late Mr. Bates, who had his stock from Mr. Bates. He desired me to do so, and these four heifers, in call by some of the late Mr. Bates' bulls, are now on their passage in the ship "Mary Carson," bound to Philadelphia; and as I wanted a few nice cattle on my farm, I ordered two Devon heifers and one bull of that breed—these latter accompany the four Durhams. The Devon heifers are from the celebrated herd of Lord Leicester. Mr. Bell writes me, under date of 15th June, that there is a great demand for Short-horns in England, and that it is computed that about £12,000 sterling worth will cross the Atlantic this season for America. I mention these facts that you may, if it should be of sufficient interest to your agriculturists, glean something from them.

Very respectfully yours, &c.,
GEO. VAIL.

## WHEN SHOULD GRAIN BE CUT?

A most important question, just at this time, for the Northern farmer. Careful observation, and some little experience during twenty years' residence in a great wheat-growing country, has convinced the writer that it is fully ten per cent. profit on the crop to the farmer, to cut his wheat before the grain is fully ripe. Our rule is to commence cutting as soon as the earliest part of the crop has passed from the milky into the dough state. There is no occasion to let it lie to cure, when cut while the straw is still partially green. Bind it up as fast as cut, and set the bundles in stooks, "Dutch fashion,"—that is, two and two leaning together, in dozens, or twenties, or any given number, so as to give an even count. Set in this way, the most unripe grain will cure and perfect itself.

The advantages,—the grain is heavier, sweeter and whiter: there is less loss of shattered grain; the straw, where that is an object, is so much better feed as to make it worth while to cut early, even if there were a loss on the grain, which is not the case.

For seed, the best portion of the field should be set apart and left to mature until fully ripe, and then carefully cut by hand, and very carefully handled, because the very grains which should be saved for seed, are the ones most easily shattered. Give these bundles a slight thrashing, and give the grain a thorough winning; screen out all but the most plump kernels, and sow those for your next crop, and you will succeed in improving both quality and product.

This question of "when should grain be cut," has been agitated for many years, both in this country and Europe, and no doubt many a reader will exclaim, "what is the use of writing anything more than that—don't everybody know "all about it?" No, sir. You know, perhaps, or what is the same thing to you, you think you do, and won't learn any more, but somebody else will. You forget, or else, in your self-conceited folly, you don't think, that about ten per cent. of all the farmers who ever make any advance in the science of farming, are not to the manor born; do not possess a sort of intuitive knowledge how to do just, "as father did," and never do or think of doing anything else.

The question has been for some time agitated regarding the state of ripeness in which grain should be reaped; and it has been recommended, as a general rule of practice, to cut down the crop before the uppermost grain can be shaked out. Taking all things into consideration, it seems to be the most prudent plan to have the grain cut before it is fully ripe; but in this a medium course should be adopted; for, although grain, if allowed to become too ripe, assumes a dull, husky hue in the sample, yet, if not ripened enough, it shrivels in the drying.

Cadet de Vaux asserts that "Grain reaped eight days before the usual time, has the berries larger, fuller and finer, and better calculated to resist the attacks of the weevil. An equal quantity of the corn thus reaped, with corn reaped at maturity, gave more bread and of a better quality. The proper time for reaping, is that when the grain, on being pressed between the fingers, has a dough appearance, like a crumb of bread just hot from the oven."

Mr Howard, in the report, on Select Farms says:—"Wheat ought never to be allowed to remain uncut until it is fully ripe. Experiments, easily made, will prove to every cultivator of it, that by permitting it to stand until the straw has lost its succulency, he gains nothing in plumpness or bulk of grain, but loses much in its color and fineness of skin; besides which, he incurs the risk of shelling, by the high wind, or by its being cut under the influence of a burning sun.

"When fully ripened by standing in the shocks no dry hour should be lost in getting it well secured."

Loudon observes, that "in harvesting Wheat, the best farmers, both in England and on the continent, agree that it ought to be cut before it becomes dead ripe. When this is the case, the loss is considerable, both in the field and in the stack-yard; and the grain, according to Von Thaer, produces an inferior flour."

An experienced Pennsylvania farmer of our acquaintance always cuts his oats while the straw is green. This he learned to do, contrary to all old practices of his father and all his neighbors, by accident. His hay crop was short one year, and he determined to cut his oats green; that is, five or six days too soon, as he thought, losing the grain for the sake of the straw. For seed he left a strip through the middle of the field, where the oats were best. The grain of those cut was just in the dough and milling state, and he expected they would all shrivel up. What was his surprise when he came to thrash to find the early cut straw yielding as much and as plump grain as that which stood till it was dead ripe, while the straw was incomparably better—in fact, the stock ate it as rapidly as they would timothy hay.

## CLOVER AS A PREPARATION FOR WHEAT, &c.

*To the Editor of the Agriculturist.*

Oakland Farm, Warwick, June 25, 1853.

SIR,—I am sorry none of your readers have taken the trouble to give your London subscriber the information he desires in the *Agriculturist* of April, although I am convinced a very great number of them could do so if they chose. I shall endeavor to give him my plan, which I have practiced for thirty years in Canada, and I saw the same course followed by the best farmers in East Lothian, and by the Tweed side and Teviotdale farmers. As I leased land both from the Marquis of Tweeda'e and in Roxburghshire, for twenty years before. I have never given but two acres a naked fallow in Canada. I sow my fall wheat always on clover sod, and my crops have advanced from ten bushels per acre on new land after Peas, without manure of any kind other than a few leached ashes to twenty-two bushels the first time on clover sod, and I anticipate an increase of from six to eight bushels every time its turn arrives in the rotation, for years to come. The course I have adopted with success, is the following, viz:—

First year potatoes, second barley seeded down with clover alone, and sown in the chaff, a two bushel bag to the acre; third, clover, cut the first crop about the 18th June, second crop seed; fourth, clover, cut the first about the 22nd June, plough down the second crop about the middle of August. Roll and sow wheat about the first of September; manure. Before sowing potatoes and wheat, I wash them in stale chamber ley and dry with lime, sow immediately. I never have one ball of smut My land is generally Oak clay and requires two yoke of heavy cattle to plough it the first time, and I have never found much difficulty in ploughing down clover sod for my wheat in the dryest season, with an ordinary team. I never sow timothy among clover when I intend to sow wheat; when I plough it down, as several experiments that I have tried have proved to my satisfaction that it does injury to the wheat; but when I sow timothy, it is in the other five years rotation I adopt, when I find it of immense value in increasing the weight of the hay crop; which is corn, oats, clover and timothy, peas, wheat and begin with potatoes again in the other. It will be seen I have a crop of wheat once in five years, while I have a crop of the others only once in ten years on the same land, while the land is properly cleaned and pulverized every fifth year, as well as being manured twice in five years. But I give the corn and peas a deal more dung than the potatoes and wheat; since the rot began, potatoes cannot suffer so much, and who does not know that over rank wheat never matures a plump berry?

Before I conclude, I beg leave to say a few words to Mr. *Tenant Farmer*. I am astonished he has never seen any difference in sowing clover with different kinds of grain. I have sown it with barley, potatoes, oats, and spring wheat, on land that was with potatoes the year before. I mowed a good crop of grass after the barley was harvested, that after the oats showed a good deal of blossom, while that after the wheat apneared doubtful whether it would be a crop at all.

When it is intended to make the second crop of clover, seed immediately after it is cut, no matter whether the weather is wet or dry, in order to start the seed crop, it is of great benefit to empty the liquid manure tanks on the stable; its effects are surprising, indeed I think it is perhaps the only way it can be used to show its real advantage that I have have had an opportunity of seeing it applied.

I have written these few remarks from experience, with the desire to benefit those who may wish to avail themselves of adopting the same.

T. S

[We shall be happy to hear again from our correspondent on such matters as have come within the range of his extended observation and experience.—*Editor*.]

## THRASHING AND PREPARING CLOVER FOR SEED.

*To the Editor of the Canadian Agriculturist.*

DEAR SIR,—Having in a former communication made some remarks on the growth of Clover for seed, I now proceed to the cutting and securing of the crop, and to the preparation of the seed for market. If the first crop of Clover was cut in proper season, the second will generally ripen about, or soon after, the 20th of September; mine is generally ripe by the time I have got fairly done with sowing fall wheat. I believe that in some parts of the country they have machines for cutting and gathering the heads of clover in the field, but never having seen any of them, I can only state the method I have pursued.

As soon as the seed is ripe (which is easily ascertained by rubbing out a few heads), it is best to mow it as soon as possible, both to prevent waste in the seed, and there is a better chance for good weather the earlier it is cut. Where one has not barn room and is obliged to stack it out, it is desirable to cut it all as soon as possible, so that the clover may all be ready for the stack at once; but where there is room in the barn, it can be cut and drawn in as most convenient.

Should the crop prove a heavy one, it is often badly laid down, which makes it hard to mow and dry, and when thus laid the seed is seldom so plump and bright a colour as when the crop stands up. When the crop is light and ripe it can be secured in a few days, but when the crop is heavy and the weather bad, it is a rather tedious job to secure clover seed in proper condition. When the weather is favourable, I actually turn the clover over in the swarth to dry properly, and then gather out of the swarth with pitchforks on to the waggon, raking the ground over afterwards with a horse rake. If the crop is very short and light, it has to be raked by hand, as it is impossible in that case to gather it clean with a horse rake. The Clover ought to be as dry as possible before it is gathered, as when well dried it greatly facilitates the thrashing and cleaning afterwards.

Clover should be tossed about as little as possible, as there is a great waste in such a practice,

especially should it have got rain after cutting. It is best to avoid putting it up in cocks, as it takes in wet in the cock very fast, and will not dry without shaking out, which causes a great waste of seed from shelling.

To prevent all danger from heating in the stack or mow, which clover is very apt to do, it is best to fix the bottom of the stack or mow so that the air can circulate beneath, and then draw one or more empty barrels up the middle of the stack or mow as it is built up, thus leaving an air-hole to draw off any heat that may generate, and so effectually prevent any heating,—as a very little heat will damage the seed. When it is stacked out it should be thatched as soon as the stack is put up, as the stack takes in rain as fast as a pea-stack would.

Clover seed can be thrashed and cleaned immediately on being taken from the field, if desired, but it is seldom cleaned before winter, as there is then most time to attend to that important process, and it is far more easily cleaned in frosty weather. The seed can be separated from the straw either with the flail or a thrashing machine, or trodden off by horses, as is most convenient; if it is thrashed by one of the large eight horse power cleaner thrashing machines it is best to fix some boards between where the chaff blows out and where the straw comes over, as most of the clover hulls blow out from the fanning mill of the thrashing machine. Care ought to be taken to shake the clover straw as clean as possible, as it is as bad to shake clean as to thrash clean.

After the clover has been thrashed off the straw and before it is put through a clover huller, it is necessary to riddle it through a coarse riddle; where there is only a small quantity to clean, a round hand riddle with meshes about three-quarters of an inch square will answer; but where there are large quantities to clean it is better to use a large riddle, say four or five feet long, and from two to two-and-a-half feet wide, made with short handles at one end, and to swing with a rope from a beam at the other, the person using it standing at the end opposite the rope, (with a stool to rest the end of the riddle on when he fills it,) and swinging it backwards and forwards till the hulls fall through, leaving the short straws in the riddle to be thrown to one side. The meshes of the riddle should be about three-quarters of an inch square. With a proper riddle fixed in this manner, a large quantity can be riddled in a day; care being taken to hang it at a proper height for the person using it, so that he may work it with ease and freedom.

After all the straws that can be got easily are riddled out the clover is ready to go through the huller, or clover stripper, as it is sometimes called; or where a clover huller cannot be got it may be cleaned by a spiked thrashing machine, set as it will run; but in this case it will have to be put through several times, which requires more time and labor than a huller, and there is likewise more seed wasted; or it may even be thrashed out with the flail if the weather is frosty—but the flail is both a tedious and laborious way.

The quantity that can be cleaned in a day will depend both on the condition and quality of the seed, and on the kind and capabilities of the machine; it has varied, according to my observations, from four to fourteen bushels in a day,—as when the seed is dry and the weather frosty, a great deal more can be cleaned than when the seed is damp or the weather fresh. After being blown through the fanning mill, the seed will require to be sifted through a sieve of about eight meshes to the inch; then again run through the fanning mill to blow out all the light seeds, dust, &c., when it is fit for market,

Where seed is only grown for one's own use all that is required is to thrash it off the straw, as it will grow just as well sown in the chaff as when it is cleaned.

It is sometimes objected to the growing of clover for seed, that it is a severe crop on land, and impoverishes it so much that it is unfit for growing any other crop. I have grown small quantities for the last twelve years, and paid particular attention to this very important point, and I could never observe any difference in the succeeding crops from that part of the field where the clover was grown for seed, and the other parts of the field that were cut only once for hay. One advantage attending the growth of clover for seed, which ought not to be overlooked, is, that it is a severe check on that great pest to the farmer, the *Canada Thistle*, as at the first cutting of the clover the thistle is just getting into blossom, and any that starts again are cut off at the second cutting; thus effectually preventing any of the thistles going to seed for that season. Good clover seed will weigh from 60 to 64 lbs. per bushel, and is said to afford 2600 grains to the dram weight.

A Tenant Farmer.

Township of Hamilton,
July, 1853

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## CLASSIFICATION OF MANURES.

The following classification is taken from Stockhardt's Field Lectures. The best manures are given first.

I. Manures Rich in Nitrogen.

1. *Substances containing ammonia*, (very forcing.) Ammonical salts of all sorts, good guano, urates, root, putrid animal substances, such as blood, flesh, skins, &c.; poudrette, gas-water, putrid urine, draining-compost, fermented stable manure, especially of sheep and horses.

2. *Azotized substances that are easily decomposed*, (somewhat quickly forcing.)—Horn-shavings, glue, boiled-flesh, bones liquified by acid, steamed and finely pulverized, oil-cakes of all sorts, malt-grain and the refuse of beer-breweries, fresh urine, dramings, stable-manure beginning to rot.

3. *Azotized substances that are decompsed with difficulty*, (slowly forcing.) Bonedust coarsely powdered, woollen-rags, fresh stable manure.

4. *Substances containing nitric-acid*, (quickly forcing.) Nitrate of potash, [ordinary saltpetre,] nitrate of soda or Chili saltpetre, nitrate of lime or decayed stable-walls, rubbish of old clay walls, and old compost earth.

II. MANURES RICH IN CARBON: [forming humus.

Stable-litter, straw, foliage, weeds, forest-leaves, saw-dust, lawn and garden trimmings, rotten mould, turf, earthy brown-coal, and vegetable substances of nearly all sorts.

III. MANURES CONTAINING POTASH: [strongly forcing.]

Potash, nitrate of potash, malt-grain from beer-breweries, urine of breeding cattle, wood ashes, foliage, stalks and leaves of all sorts, lawn and garden trimmings, building rubbish, street-sweepings, compost, burnt clay and loam, marl of many sorts.

IV. MANURES CONTAINING SODA: [less visibly operative.]

Common salt, refuse salt, Chili saltpetre, soap-boilers' lye, urine, certain sorts of manuring salts, soda felspar, and some other kinds of stone, soap-suds, dish-water.

V. MANURES RICH IN PHOSPHORIC ACID: [seed-forming.]

Burnt bones, bone black, sugar refuse from refineries, phosphorite, and a few other kinds of stone, poor guano,, raw bones, bone dust, true guano, animal substances of all kinds, oil-cake, malt-grain from breweries, solid human and animal excrements, stable-manures, urine of carniverous animals, wood ashes, straw, leaves, &c.

VI. MANURES CONTAINING SULPHURIC ACID: [partly direct manures, partly absorbent of manuring substances.]

Gypsum, sulphuric acid, green vitriol, sulphur-coal, ashes of pit-coal, turf, and brown coal.

VII. MANURES RICH IN LIME.

Burnt lime, chalk, marl, gypsum, ashes of brown-coal and turf, building rubbish, pond mud, and soap-boilers' ashes.

VIII. MANURES RICH IN SILICA.

Pit-coal ashes, as also ashes of all sorts, sand, straw, stable-manure, &c.

IX. MANURES THAT PULVERIZE THE SOIL.

Sulphuric acid, muriatic acid, lime, marl, humus, &c.

X. MANURES THAT IMPROVE THE SOIL.

Lime, marl, loam, sand, pond-mud, vegetable mould, turf, &c.

Here is a fine classification of the chief manures that are employed as fertilizers.—They should be chosen and applied according to the nature and condition of the soil, as well as with reference to the crop, that is to be produced. Many of the manures are compounds—hence the reason why you find them repeated in the different classes. The farmer should preserve this classification and use it until he finds a better one.—

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Subsoiling sound land, that is, land that is not wet, is eminently conducive to increased production.

## TRAINING HORSES FOR THE SADDLE.

The following passages are taken from that excellent English periodical, the *Veterinarian*, and will be found well worth a careful perusal.

We have always been of opinion that horses were used under great disadvantages, irksomely to themselves, besides awkwardly and annoying to their riders and drivers, who had not been educated, or, as it is called, "broke in," for the purpose for which they were intended. Compared with the number who receive no "breaking" at all—or none, save what little they get, to quiet them to domesticity, from the hands of the country "colt breaker," how few are they who have once had a schoolmaster's whip over their heads. And yet, mount an animal of this numberless class, and afterwards throw the leg over a really broke or managed horse, and the difference is likely to prove as great as—speaking not so very wildly—between riding a horse and riding a cow. True it is, with persons who do not from experience understand this, riding is riding so long as it is on horseback; but a true and expert horseman would as soon ride a donkey as an awkward, no-mouthed, no-paced horse.

On all occasions it is a consideration of moment to avoid alarming a horse; and although this applies to every hour of his life, it is of greater consequence with young than with aged horses; that is to say, young ones will be alarmed at trifling objects, which at a future age they would not notice.

The control which we acquire over the horse depends upon the mouth, and likewise a vast proportion of the agreeable or disagreeable associations which render exercise on horseback pleasant or toilsome. A good mouth is the medium by which any improvement in the natural carriage of an animal is to be accomplished. When going at a slow pace, the way in which a horse carries himself may, to a very considerable extent, be controlled; but when at speed, or even when nearly approximating that pace, his unrestrained action must prevail. By habit in the slow paces, improvement in the faster ones may be slightly obtained; but that must be brought about by very moderate attempts, otherwise the action of the animal, far from being corrected, will inevitably be rendered worse. A horse that bends himself nicely, is undoubtedly more pleasant to ride than one which runs with his nose down to his knees; or the reverse, with his head in rivalry with that of his rider; and such defects are, in most cases, capable of correction if properly treated in juvenile days; but too much constraint is adverse to pace both for racing and hunting. When a horse carries his head too high, it may, in many instances, be remedied by using a curb bit without any port, but with rather long cheeks, and the curb chain hung quite loose. Accompanied with good hands, this often produces an excellent effect, especially with young horses, which are disposed to contend against the control of a martingale. It may appear as a contradiction, but when a horse carries his head too low, a curb bridle will often be found the best remedy; and the contradiction is cleared up by the remark, that the difference of effect is pro-

duced. For the latter purpose, a short-checked bit, when judiciously used, will with many subjects be found effectual; and, in order to render it so, the hands must be raised higher than usual at the precise instant when the animal endeavours to drop his head; by this means the curb is brought into action, but should be again released when a proper position of the head is obtained. This should be particularly attended to, for such horses are very apt to hang on the bit—an imperfection likely to increase with age if not counteracted. Although I so far advocate the use of double rein or curb bridles for certain purposes, let me not be misunderstood as recommending them for general use; quite the reverse. A horse with a good mouth, carrying his head in the true position, never goes so freely and pleasantly to himself, as with a snaffle bridle; but it is to teach the horse how to carry himself, that the curb is in many cases of great utility.

A really good hack is a difficult creature to procure. Not that there is a great scarcity of the 'raw material,' but, unfortunately, it is only the raw material that can, in many instances, be obtained; this arises principally from want of care in breaking. It is presumptuous for people to suppose, and subjects them to ridicule when they assert, that they can complete the education of a colt as well in three weeks as in three years; but there may be some few who do not appreciate a nicely trained hack, and it is a great pity when such an animal happens to get into their possession. Those who have the means only purchase such horses, as are thoroughly educated, or they employ men of experience to break, and cultivate the accomplishments of the horse which they either breed or buy. Of course they only select those of goodly appearance, with superior action; and no one need despair of making them agreeable to ride, if they will unite patience with discretion. Such animals will always realize a good price; but it requires time to render them perfect. To suppose that a horse can be educated, so as to carry his rider with comfort and pleasure, in three weeks, or even three months, is ridiculous.

## TRAINING STEERS.

The following mode of transforming the wild and unmanageable steer, into the gentle and well trained ox, is both reasonable and instructive. We extract from the *Country Gentleman:*

The first point is to make them tame and gentle. This may be accomplished by feeding them out of the hand, and carding them daily. They should be approached gently, without yelling at them until they are frightened out of their wits. After having reduced them to a state of perfect docility, a good yoke should be procured, suitable to their size and strength. A small pen is necessary to put on the yoke; approach gently with the yoke, patting and speaking gently to them until you have the yoke on the off steer; then let an assistant drive the other under the yoke. Their tails should then be securely fastened, to prevent their getting the habit of turning the yoke. They should be yoked in the morning, and unyoked at night—in this manner, for several days, until they become accustomed to the yoke.

The first thing to teach them is, to stop at the word of command. This may be done by striking them across the face; the blows should be repeated until they stop, and then discontinued; by striking them for every non-observance of the word of command, they will soon learn that by stopping they will avoid it, and will act accordingly. They may be taught then to "gee" and "haw," by gently pushing them around Backing may be taught by beginning with an empty cart on a side-hill; then on a level; then with an increasing load until they will back nearly the same load they will draw. They should never be put to a load that they cannot readily draw, or drilled by prolonged exercise beyond the period when it becomes irksome. Loud and repeated yelling, or the use of the lash, is both cruel and useless. Clear and intelligible, yet low and gentle words, are all that is necessary to guide a well trained ox. The ox understands a moderate tone more perfectly than a boisterous one, as all sounds become indistinct as they increase. A command should never be given unless enforced. Many bear with bad tricks for a long time, without even an expression intelligible to them; but when patience departs, a thorough storm of blows is poured upon them. This is the way to ruin every beast; a single blow should be given for each offence.

## SCIENCE AND AGRICULTURE.

Look at that wide valley, with its snow-clad summits at a distance on either hand, and its glassy river flowing cribbed and confined, in the lowest bottom. Smiling fields and well-trimmed hedge-rows, and sheltering plantations and comfortable dwellings, and a busy population, and abundant cattle, cover its undulating slopes. For miles industrious plenty spreads over a country which the river formerly usurped, and the lake covered, and the rush tufted over, and bog and mossy heath and perennial fogs and drizzling rains rendered inhospitable and chill. But mechanics have chained the river, and drained the lakes, and bogs, and thus giving scope to the application of all the varied practical rules to which science has led, the natural climate has been subdued, disease extirpated, and rich and fertile and happy homes scattered over the ancient waste.

Turn to another country, and a river flows deeply through an arid and desolate plain. Mechanics lift its waters from their depths, and from a thousand artificial channels direct them over the parched surface. It is as if an enchanter's wand had been stretched over it—the green herbage and the waving corn, accompanied by all the industries of rural life, spring up as they advance. Another country, and a green oasis presents itself, busy with life, in the midst of a desert and sandy plain. Do natural springs here gush up, as in the ancient oasis of the Libian wilderness? It is another of the triumphs of human industry, guided by human thought. Geology, and her sister sciences, are here the pioneers of life and fixed habitations. The seat of hidden waters at vast depths was discovered by her. Under her directions mechanics have bored to their sources,

and their gushing abundance now spreads fertility around. Such are the more sensible and larger triumphs of progressing rural economy—such as man may well boast of—not only in themselves, but in their consequences; and they may take their place with the gigantic vessels of war, as magnificent results of intellectual effort.—*New England Farmer.*

## THE FARMER'S PROSPECTS.

*To the Editor of the Canadian Agriculturist.*

Sir:—As your valuable journal is the only one in Upper Canada, which the farmer can exclusively call his own; the only one entirely devoted to the interests of the farming community, and consequently the only one in which farmers can communicate their ideas to one another, without being sneered at,—can suggest anything that they think would be for the public good, without drawing down upon themselves a torrent of abuse, such as we see daily polluting the pages of many of our leading political papers,—can ask any information they require, from those who have had more experience, or whose more liberal education enables them to do so, and whilst these more experienced and better educated farmers impart that information to others, they not only improve themselves, but confer a lasting benefit on mankind.

It has been well said by a certain philosopher, that "he who makes two blades of grass grow where only one grew before," is a benefactor to his country, and surely our hardy sons of toil, who have made Canada what it is, have been benefactors to their country in the truest sense of the word; men who boldly plunged into the wilds of the forest, with their axe on their shoulders, had to cut their way for miles, over rivers and swamps, to the place of their future residence, and then see the hardy settler as he makes his temporary hut, to shelter him at night while he clears off the trees—and raise his log shanty, which to him is his castle, for the time being,—by and bye you see it give place to a larger and a more commodious one, perhaps to meet the demand of his rising family, this, in its turn, gives way to the beautiful brick or stone dwelling-house. When the industrious farmer has now gathered around him all the necessaries, and a great many luxuries of civilized life—see his capacious barns full of grain—see his well arranged sheds, and farm-yard well filled with Stock of the choicest breeds. See his well laid out farm—perhaps dotted with a few blackened stumps, but nevertheless, contrasting strongly with the dense and tangled forest, that waved triumphantly there a few years before—see his substantial fences, straight and good; well staked and ridered, the very look of which is enough to deter the most audacious ox; see his gates, swinging freely on their hinges, not dragging on the ground, none of your sliding bars—that a man must lay down and put up, every time he passes through with a team, by which he will, in the course of one year, lose more time, than two gates would be worth, and then see his nice kitchen garden, under the fostering care of some of the female members of the family, prolific with wholesome vegetables—and his beautiful orchard, stocked with the choicest fruit trees.

I say Sir, if such men as I have been describing—and I am proud to say that we have many such in Canada—are not the best benefactors our or any other county, can produce, then my reasoning is false, my logic is unsound; but, I leave it to your candid readers to draw their own conclusions. Lift up your heads ye pioneers of the forest, ye sturdy yeomanry of Canada, whose sinewy arms, made strong by toil, have made you what you are, a free, happy, and independent people; you have nobly done your duty, you can now sit down and enjoy the fruits of your labour, and although your hands may be hard and stiffened by toil, and your once active limbs may have lost their agility, and your athletic frame and robust constitution may have been impaired by privation and hardship, and your honest countenance once full of expression, now furrowed by the plough of Time—and your raven locks that once hung so gracefully on your shoulders, now bleached with the frosts of 60 or 70 winters; still your heart is as kind, and your affections and sympathies as warm as ever. No unfortunate wanderer imploring assistance is sent empty away. No houseless stranger is refused the shelter of your roof, your hospitality extends to all.

Happy, happy farmer! how the great ones of the earth might envy your lot! But, Sir, I have forgotten the subject on which I at first intended to write, viz., "Live Fences," a subject which must soon become of vital importance to the country; with your permission I will take it up at some future period, till then believe me,

Yours truly,
HIBERNICUS.

Toronto, July 1853.

## FARMING.

If one half the zeal, energy and expense that blots so many gazettes with low and coarse abuse, setting the whole community by the ears for the vain and paltry purpose of a few demagogues and office seekers, were bestowed on the advancement of agriculture. If the people were half so ambitious to improve and beautify their fields, as they are to settle the affairs of the nation; and half so angry with thistles, thorns and poor fences, as they are with their political opponents, who probably wish as well to the country as they, we should have more productive fields, less complaints of poverty, more ability to be charitable and munificent, and abundantly more good feelings. From Pittsburgh to New Orleans the son plows as his father did before him, and the great mass of farmers are as stationary in theory as they are in practice. Nine in ten believe at this moment, that book farming is the mere, useless, visionary dreaming of men that know nothing about practical agriculture.

We would tell them that England is the garden of Europe simply because almost every acre of the ground is cultivated scientifically, and on principles which have been brought to the test of the most rigid and exact experiment. We would tell them that New England, of whose soil and

climate they are accustomed to think, as consigned by Providence, to sterility and inclemency, is the garden of the United States, only because the industrious and calculating people do not throw away their efforts in the exertion of mere brute strength—but bring mind, pain, system and experience to bear upon their naturally hard and thankless soil.

On every side the passing traveller sees verdure, grass and orchards in the small and frequent enclosures of imperishable rock, and remarks fertility won from the opposition of the elements and nature. After an absence of ten years, on our return to our country, we were struck with this proud and noble triumph conspicuous over the whole region.

The real benefactors of mankind, as St. Pierre so beautifully said, are those, who cause two blades of wheat to mature where one did before. The fields ought to be the morning and evening theme of Americans that love their country. To fertilize and improve his farm, ought to be the prime temporal object of the owner of the substantial soil. All national aggrandizement, power and wealth may be traced to agriculture, as its ultimate source. Commerce and manufactures are only subordinate results of this mainspring.

We consider agriculture as very subsidiatory not only to abundance, industry, comfort and health, but to good morals and ultimately even to religion. We shall always say and sing, "Speed the plow." We shall always regard the American farmer, stripped to his employment, and tilling his grounds as belonging to the first order of noble men among us. We shall always wish them bountiful harvests, good beer, and moderate use of cider; and if he will rear it himself, of the grape, but none of the pernicious gladness of whiskey; and we shall only invoke upon his labors the blessing of God, and say of him peace be within his walls.—*Rev T Flint.*

## THE HORSE—WANT OF APPETITE.

This sometimes arises from over exertion, or immoderate work, which produces general debility, and of course the whole functions are more or less disturbed, and take on the morbid action. At other times, it is brought on by overloading the stomach and bowels; by standing in the stable without exercise, and eating immoderately of hay. Want of appetite may depend on a natural delicacy of the stomach, or on the bad quality of the food.

Bad hay is often eaten with little or no appetite, especially when it has been musty.

When the appetite fails, though the food is good and the horse has only moderate work, the diet should be changed; a small quantity of straw cut up with what is called cut food would be serviceable; but if the horse has been worked hard, rest, probably, is the remedy necessary. Young horses sometimes refuse the hay, or mangle it, from soreness in the mouth in consequence of changing their teeth. This is sometimes attributed to lampas, and the knife or firing iron is resorted to; this is a cruel and barbarous practice, and should never be permitted. When a young horse is changing his teeth, the whole mouth is red and tender, which makes him fearful of eating hay or unground corn, from the pain it gives him. In such cases, the horse should be kept on scalded shorts or cut feed, until the soreness of the mouth is removed. In old horses when the lampas are down to a level with the front nippers, the part should be washed with a strong solution of burnt alum; or make a solution of powerful *bloodroot, and wash the part night and morning.*

All serious internal disorders are attended with loss of appetite. Weakness of appetite is often constitutional, and cannot be cured yet it may be palliated; when such a horse is wanted only for moderate work, his appetite may be greatly improved by careful feeding and grooming, and a well ventilated stable. The food must be of the best quality and the water pure and not too cold or hard; he should have but little food at a time, but more frequently. He should never have more but rather less food put before him at a time than he is inclined to eat; and if at any time he is found to leave food in the manger, it should be taken out, and, after keeping him without food for a short time, some fresh hay, oats, or shorts may be given. The rack, manger and every *part of the stall should be kept clean;* and when taken out for exercise or work should be well swept out, the old litter spread out to dry, and that part unfit for use taken away. At night some clean fresh straw should be placed under him. A change of food is often useful, especially when green food or carrots can be obtained. It is the custom in many stables to collect the bedding, after it has been saturated with the excrement and urine, and place it under the manger, thus submitting the horse to the noxious vapors that that arise from the filthy mass. Is it to be wondered at, that the poor animal should drag out such a miserable existence?

## LAYING OUT SURFACES.

A few simple rules are oftentimes convenient to those who are not conversant with surveying operations; and a writer in the Western Horticultural Review has communicated to that work some very good ones, some of which we copy, and to which we add a few others.

*To lay out an acre in a circle.*—First fix a centre, and with a rope as a radius, seven rods, three links and three-eighths long, one end attached to the centre, and kept uniformly stretched, the sweep of it at the other end will lay out the acre.

For one quarter of an acre, a rope *three* rods and *fourteen* links will be the right length.

For one-eighth of an acre, a rope *two* rods and *thirteen* links will be enough.

*Triangles.*—If you wish a triangle to contain just an acre, make each side nineteen rods, five and a half links long.

A triangle whose sides are six rods and twenty links long each, will contain one-eighth of an acre.

*To lay out an ellipse or oval.*—Set three stakes in a triangular position. Around these stretch a rope. Take away the stake at the apex

of the triangle, which will be where the side of the oval is to come; move the stake along against the rope, keeping it tight, and it will trace out the oval.

A square, to contain an acre, or just one hundred and sixty rods, should have each of its sides just twelve rods, ten feet and seven-tenths long.

*To draw an oval of a given size.*—The long and the short diameters being given—say twenty feet for the shorter, and one hundred for the longer—divide the short diameter into any number of equal parts, say ten, and from each point draw a line parallel to the long diameter; then divide the long diameter into the same number of equal parts, (ten) and from each point draw a line parallel to the short diameter. Then draw a line from point to point where each corresponding line cuts the other, on the outside, and this connecting mark will describe the oval or ellipse required.—*Maine Farmer.*

## HORTICULTURE.

### IMPROVING OLD PEAR TREES.

It is quite common, on looking about a farm house in any long settled part of the older States, to see more or less old pear trees in the vicinity of the buildings. The natural or wilding pear stock, when once acclimated to the soil, is remarkably hardy—few trees of any kind more so—and if left unscathed by the blight, it may stand flourishing and fruitful for centuries. Such trees, however, seldom yield fruit of much value, being deficient in flavor, choky, and astringent.

*A Remedy.*—Supplanting this valueless fruit with the choicest, can at once be applied, but a stern prejudice seems to have governed those who own such trees in the belief that "grafting old trees" will not succeed.

Last August, spending a day at Whitesboro', in the county of Oneida, in this State, we took a ride to the beautiful picturesque hill at the south of the village, to the agreeable residence and farm of Captain Henry White, a grandson of the late venerable Hugh White, the first settler of that town, and whose domain is a part of the original possessions of that hardy veteran. Walking with us in the orchard near the house which overlooked the broad and luxuriant valleys of the Sauquoit and the Mohawk, with several thriving villages, and the city of Utica in full view, Capt. White pointed out a venerable pear tree, standing by itself, which was planted three years previous to the present century, and now probably sixty or seventy years old—a seedling, which, ever since his remembrance until lately, bore large crops of worthless fruit. Five or six years since, he headed it thoroughly in, and grafted it with Virgalieu (white Doyenne) pears. The shoots grew vigorously, and were then hanging full of the finest fruit; fair, healthy, and free from either spot or crack, to which this variety of the pear has of late years been so much afflicted. The main trunk was also vigorous, and to all appearance it may stand a full century longer, and favor its proprietors with annual crops, if proper care be taken of it.

Another instance. A few weeks ago, paying a visit to a friend on the Canada side of the Niagara river, a region renowned far for its fine apple orchards, he pointed out to us in his orchard, a large pear tree upwards of two feet in diameter at the base, which had been planted there at least sixty years before. It was healthy and flourishing. A few years previous, its owner being at our own residence, had taken some cuttings of the Maria Louisa, Winter Nellis, Virgalieu, and Glout Morceau pears, home with him, and headed back a part of that tree, in the limbs of which he inserted the grafts. What was our surprise on being shown in the high top of this tree, vigorous branches bending under the weight of such specimens of all these varieties as we had scarcely before seen—large, fair, and perfect—better indeed than on any young trees of our own!

We can offer no better service to our readers than to earnestly invite them, in the proper season, at once to head in every pear tree which bears indifferent fruit, let it be ever so old, and fill the branches with choice varieties. No matter how old the tree, if still alive. Generous treatment, with lime, potash, crushed bones, and chip manure—saw dust or spent tan bark will do, if the chip-dung be not at hand—and all well dug in; the tree will then renew its age, and give even to the next generation abundant crops of fruit. There is hardly a tree in existence which has greater vitality than the pear, and certainly none which better pays for cultivation. We have known forty bushels taken from a single tree the past season, and twenty to thirty is a common crop on full-sized trees.—*The Agriculturist.*

### INSECTS AND PEAR BLIGHT.

Professor Turner, of Illinois, thinks he has discovered the cause of the western pear and apple blight. He finds little white specks on all parts of the tree—as every one has observed—but some of these are larger than the rest, appearing like a "mite of mould" on the bark. This he finds, by the use of the microscope, to contain "infinitessimal" eggs in vast numbers, which subsequently hatch into microscopic insects. They appear to exude a poison, which destroys the bark beneath, leaving small holes like the prick of an awl, and are in short the cause of blight, that is, in other words, death. As many close observers, with powerful microscopes, have never discovered these punctures in diseased trees, we may fairly infer that if these insects cause the death of Professor Turner's trees, they do not of most other people's. He has tried ineffectually to destroy them with "soap, ley, ashes, lime, copperas, sulphur, plaster, tobacco, spirits turpentine, salt, coal-tar, charcoal, asafœtida, and a whole apothecary shop of other drugs." He calls for the observations and experiments of others. He proposes for this insect the elegant name of "pear devil."—*Albany Cultivator.*

### HOW TO ENLARGE VEGETABLES.

A vast increase of food may be obtained by managing judiciously and systematically—carrying out for a time the principles of increase.—Take, for instance, a pea. Plant it in very rich

ground; allow it to bear the first year, say half a dozen pods only; save the largest, the following year, and retain of the produce three pods only; sow the largest the following year, and retain one pod; again select the largest, and the next year the sort will by this time have trebled its size and weight. Ever afterwards sow the largest seed, and by these means you will get peas or anything else, of a bulk of which we at present have no conception.

WINTERING TEA ROSES.

The following mode is reported by the editor of the Horticulturist, as having been entirely successful the past severe winter. One foot of tan bark, applied to the oval bed late in autumn, nearly cover all the stems, the tallest being bent down. This tan bark was kept perfectly dry by means of three bundles of straw, formed into a circular radiating thatch, gathered to a point at the centre- forming what a farmer would call a cap. Keeping the tan dry is the great requisite.

THE PLANT FLY TRAP.

We have read of the vegetable snake of Africa, and the water-spider flower of Persia; we have seen a pea grow up with wings, which might easily be taken for those of a dragon-fly, but one of the most ingenious fly traps in the world is a plant which grows in our shaking deep marshes; it has a small fibrous root, and no leaves; the stalk is about three-sixteenths of an inch in diameter, is one foot high, and is surmounted with a flower; it is furnished with a bag of a peculiar form, and something like a purse at the throat. The mouth is lined with hairs, which are the watchers for prey, and the sentinels to the vegetable nerves of the plant; they are very numerous and powerful, and act at once on the throat of the bag, which has a thick cartilage, like an India rubber band. No sooner does a fly enter this bag, than, like the sensitive plant, it contracts, closes upon the fly, and makes it a prisoner within its vegetable crushing folds. In this manner the plant supplies itself with food, and on cutting one open with a knife, the bottom of the bag will be found stuffed with the skulls and limbs of water flies, reminding a person of some cannibal's cave. How wonderful are the works of the Almighty; every seed bringeth forth after its kind, and with all its special adaptations.

## MISCELLANEOUS.

A CANADIAN PRINTER IN LUCK.

RUTTAN'S RIFLE.—We were shown yesterday, by Mr. Wm. C. Ruttan, his letters patent for a new rifle, and after a thoughtful examination of his model of the projectile, and a knowledge of the distance it has been thrown, we are satisfied that this new affair is superior to all the death-dealing implements of which we have heard. Mr. Ruttan has had his invention thoroughly tested and guarrantees sharp-shooting at the enormous distance of one mile. The celebrated Minie rifle—although far heavier than this—which does not exceed the weight of an ordinary gun—has never done good work at the distance named; and all the French inventions are outdone by this effective and yet very simple contrivance of the Canadian. The slug is of a triangular shape—so constructed as to meet the least possible resistance from the air, so that in firing at long range it is not necessary to elevate the barre'. Mr. Wm. H. Soper, of London, is manufacturing the rifles, and having obtained the right for his county, is turning out a great number, but still is not able to meet the demand. Mr. Ruttan will, of course, realize a large sum of money by his ingenuity. He intends to proceed shortly to Britain and the Continent, and although we know some of the old fogies, in the army and out of it, will turn up their noses at the idea of anything good (or bad) emanating from a Colonist, yet we are quite certain that Mr. Ruttan's invention will be understood and appreciated at once by scientific and practical men. Mr. Ruttan is a practical printer, but like others who learned the art, he speedily abandoned it, and we are glad to find that he has succeeded in doing something more profitable. He belongs withal to an *inventive* family, being a nephew of Mr. Sheriff Ruttan, of Cobourg, whose improved method of ventilating and heating buildings has been admired and commended, both in the United States and Canada.—*Spectator.*

A HIGHER GOOD.

In Coleridge's "Aids to Reflection" we find the following aphorism and comment:—

Your blessedness is not,—no, believe it, it is not, where most of you seek it, in things below you. How can that be? It must be a higher good to make you happy.—*Leighton.*

Every rank of creatures, as it ascends in the scale of creation, leaves death behind it or under it. The metal at its height of being seems a mute prophecy of the coming vegetation, into a mimic semblance of which it crystalizes. The blossom and flower, the acme of vegetable life, divides into correspondent organs with reciprocal functions, and, by instinctive motions and approximations, seems impatient of that fixture, by which it is different in kind from the flower-shaped Psyche, that flutters with free wing above it. And wonderfully in the insect realm doth the irritability, the proper seat of instinct, while yet the nascent sensibility is subordinate thereto, —most wonderfully, I say, doth the muscular life in the insect, and the musculo-arterial in the bird, imitate and typically rehearse the adaptive understanding, yea, and the moral affections and charities, of man. Let us carry ourselves back, in spirit, to the mysterious week, the teeming work-days of the Creator: as they rose in vision before the eye of the inspired historian of *the generations of the heaven and the earth, in the days that the Lord God made the earth and the heavens.* And who that hath watched their ways, with an understanding heart, could, as the vision evolving still advanced towards him, contemplate the filial and loyal bee; the home-building, wedded and divorceless swallow; and above all, the manifoldly intelligent* ant tribes, with their

* See Huber on Bees, and on Ants.

commonwealths and confederacies, their warriors and miners, their husband-folk, that fold in their tiny flocks on the honeyed leaf, and the virgin sisters with the holy instincts of maternal love, detached in selfless purity,—and not say to himself, Behold the shadow of approaching humanity, and the sun rising from behind, in the kindling morn of creation! Thus all lower natures find their highest good in semblances and seekings of that which is higher and better. All things strive to ascend, and ascend in their striving. And shall man alone stoop? Shall his pursuits and desires, the reflections of his inward life, be like the reflected image of a tree on the edge of a pool, that grows downward, and seeks a mock heaven in the unstable element beneath it, in the neighborhood with the slimy water-weeds, and oozy bottom-grass, that are yet better than itself and more noble, is as far as substances that appear as shadows are preferable to shadows mistaken for substances? No! it must be a higher good to make you happy. While you labor for anything below your proper humanity, you seek a happy life in the region of death. Well saith the moral poet—

Unless above himself he can
Erect himself, how mean a thing is man!

### DECLIVITY OF RIVERS.

A very slight declivity suffices to give the running motion to water. Three inches per mile in a smooth straight channel, gives a velocity of about 3 miles an hour. The Ganges, which gathers the waters of the Himalay Mountains, the loftiest in the world, is, at 1800 miles from its mouth, only about 800 feet above the level, of the sea; that is about twice the height of St. Paul's Church in London, or the height of Arthur's seat, near Edinburgh; and to fall those 800 feet, in its long course, the water requires more than a month. The great river Magdalena, in South America, running for a thousand miles between two ridges of the Andes, falls only five hundred feet in all that distance. Above the commencement of the thousand miles it is seen descending in rapids and cataracts from the mountains. The gigantic Rio de le Plata has so gentle a descent to the ocean, that in Paraguay, fifteen hundred miles from its mouth, large ships are seen which have sailed against the current all the way by the force of the wind alone; that is to say, which, on the beautifully inclined plane of the stream, have been gradually lifted by the soft wind, and even against the current, to an elevation greater than that of our loftiest spires.—*Arnott's Physics.*

### DOMESTIC MANUFACTURES.

We have had the pleasure of inspecting some samples of Spades and Shovels manufactured by D. F. Jones & Co., of Gananoque, which were intended for exhibition at the New York World's Fair, to be opened in New York this week. The work shewn to us is of the very best description, and made from the best material. The steel is perfectly free from flaws of every description, and the handles made of the soundest wood. The handle and blade look as if they had grown together, so perfectly are they fitted. After having examined these highly finished articles intended for exhibition, we compared them with those intended for ordinary sale and found that the latter did not suffer from the comparison. Of course the spades and shovels intended for use are not so highly finished as those intended for show, but they are well finished and made of precisely the same materials and of the same pattern, and would do as good work and as much of it as the most highly finished article. On comparing the prices of these Canadian made articles, we found that they could be laid down in Toronto at about the same price as similar articles from the United States. We are really glad to be able to add this item to the list of our domestic manufactures, and hope very shortly to see many others of the same kind added, such as scythes, saws and files. For the manufacture of files we observe that a patent has been taken out by Jackson McIntyre of Kingston, for a File cutting Machine. Should Mr. Jackson's machine answer the purpose indicated by its name, he would have done more wisely to have sent it to Sheffield, than to have taken out his patent in Canada. We shall be happy to learn that he is successful, for it is a desideratum long looked for in Sheffield, and we shall be proud to see the ancient town of files and whittles indebted to so young a country as Canada for so great an improvement in its manufactures.—*Patriot.*

### WHAT ARE TREES MADE OF?

If we were to take up a handful of soil, and examine it under the microscope, we should probably find it to contain a number of fragments of woods, small broken pieces of branches, or leaves, or other parts of the tree. If we could examine it chemically, we should find yet more strikingly that it may be nearly the same as wood in its composition. Perhaps, it may be said the young plant obtains its wood from the earth in which it grows. The following experiment will shew whether this conjecture is likely to be correct or not. Two hundred pounds of earth were dried in an oven, and afterwards put into a large earthen vessel; the earth was then moistened with rain water, and a willow tree, weighing five pounds was planted therein. During the space of five years the earth was carefully watered with rain water. The willow grew and flourished and to prevent the earth being mixed, with fresh earth being blown upon it by the wind, it was covered by a metal plate, full of very minute holes, which would exclude everything but air. After growing in the earth five years, the tree was found to have gained one hundred and sixty four pounds. And this estimate did not include the weight of the leaves or dead branches, which in five years fell from the tree.

Now came the application of the test. Was all this obtained from the earth? It had not sensibly diminished; but in order to make the experiment conclusive, it was again dried in an oven and put in the balance. Astonishing was the result—the earth weighed only *two ounces* less than it did when the willow was first planted in it! yet the tree had gained *one hundred and sixty four* pounds. Manifestly, then, the wood thus gained in the space of time was not obtained

from the earth; we are therefore obliged to repeat our question, "where does the wood come from?" We are left with only two alternatives; the water with which it was refreshed, or the air in which it lived. It can be clearly shown that it was not due to the water, we are consequently unable to resist the perplexing and wonderful conclusion, it was derived from the air.

Can it be? Were those great ocean spaces of wood, which are as old as man's introduction in to Eden, and wave in their vast and solitary luxuriance over the fertile hills and plains of South America, were all these obtained from the thin air? Were the particles which unite to form our battle ships, old England's walls of wood, ever borne the world about, not only on wings of air, but actually as air themselves? Was the firm table on which I write, the chair on which I rest, the solid floor on which I dwell, once in a form which I could not as much as lay my finger on, and grasp in my hand? Wonderful truth—all this air.—*English Paper.*

### CHIMNEYS.

In building flue chimneys, in brick walls, the inside should be plastered as carefully and smoothly as the finishing coat of a parlor. Masons do not do this; they put on the common lime used by them for jointing, and the interior surface is covered without a proper regard being paid to the functions of the chimney. The reasons for laying on the coat of a chimney so smooth, are obvious, if we take into consideration that the rough edges of the lime, when dry, serve as points of attraction and adhesion for soot, because they resist the passage of the smoke. A smooth chimney has *a better draught*, to use a common term, than one with a rough interior; the reason of this is also obvious, because rough surfaces retard the passage of smoke, as well as water or any other substance in motion is retarded by them. In the building of houses, masons are too careless about these things; indeed the majority of them do not appear to have any knowledge of natural philosophy, yet there is no man living, be he mason, plasterer, or hod-carrier, but stands high as a workman, according as he is well informed.

Were it not for the general form of the walls of buildings, it would be much better to have the chimneys built of round or oval shape, like the funel of a steamboat. The flues in brick houses should be built circular inside; this would be a little more troublesome, yet the flues would be all the better for it; yet, if they were only plastered smooth, no one would have to complain of a square or rectangular form.

Some chimneys are built with tremendous gaping fire-places, others are built wide at the base, and taper towards the top: both plans are erroneous. A moderate width of fire place is all that is required (we have wonderfully improved on our forefathers in this respect,) and it would be far better if a chimney is built tapering, to have the widest part at the top, where the smoke is to make its exit. A reason for this is, that when the smoke is confined below, and suddenly allowed to expand at the top, it forms a partial vacuum, which draws up the smoke. It is upon this principle that Prof. Epsy's Ventilator, is constructed. It may be said the open expanse above the chimney, allows the smoke to expand, therefore it is of no use to widen the top of the chimney inside; this is very true.

The rule which should be followed in the building of a chimney, is to build it of a uniform diameter from bottom to top, not too wide and smoothly covered with plaster inside.

The object of writing this article was to direct attention to making the interior of chimneys smooth and well covered with lime. In many cases there are chimneys built for small houses, of a diameter which would enable them to carry smoke away from one of Collins' steamships. Masons do not appear to take into consideration, when they build a chimney, what it has to do, namely to carry off the smoke from one or two fires. The narrower the chimney the better will it draw, consequently a wide chimney for a small fire—a very common error—embraces a very scientific principle, as erroneous as it would be to array Tom Thumb in a suit belonging to Giant Hale, for the purpose of refrigeration in the dog-days. We have used the term draw, in respect to the current in the chimney, as it is generally understood; the principle of draught in a chimney has nothing to do with pulling or drawing the smoke; pressure, expansion, and absorption are the governing causes of ariel currents.—*Sci. American.*

### SOURCE OF THE NUTRITIOUS PROPERTY OF VEGETABLES.

The nourishing property of corn, wheat, and other grains, is owing to the gluten contained in them. And this gluten consists, in great part, of nitrogen. It is of course an important object with the farmer, to increase the proportion of gluten, and that is done by supplying additional nitrogen in the aliment of the plant. Carbonic acid and water are the chief sources of *growth*. Nitrogen is the principal element constituting the nutritive quality. The atmosphere contains a large quantity of nitorgen. It is not supposed to be taken up by vegetables, however, from the atmosphere in its simple form, but, by combination with the hydrogen, in the form of ammonia. By the digestion of the ammonia, the nitrogen is afterward seperated in the plant and used, to constitute the peculiar product, gluten, to which its nutrition is owing.

Ammonia is produced by the decay of animal substances. In this way it is that the application of manures is so beneficial to plants;—by the supply of ammonia furnished, which being digested in the plant results in a seperation of nitrogen, which enters in the tissue of plants and produces their nutritive quality.

Ammonia is readily absorbed by water, and the rain or dew becomes impregnated with it, and it is thus administered to vegetables, in small quantities. This may be sufficient for their existence and ordinary growth. But a greater supply of ammonia is necessary to some plants on account of their peculiar economy. This is the case with all plants containing much gluten. And this substance may be greatly increased by a liberal supply of manures from which ammonia

is more abundantly provided.—These plants can therefore only be cultivated advantageously by a frequent application of manure, or otherwise an equivolent provision of ammonia in another form. Corn ordinarily, when raised in vegetable mould, contains nine and a half per cent. of gluten; but raised on land manured with blood or urine, has been found to contain thirty-five hundredths of gluten.

Gypsum has the quality of absorbing ammonia from the atmosphere, and yield it again to water which may soak through it. This is the mode in which gypsum has a beneficial action on vegetation, while the gypsum itself held in solution in water is considered injurious.—*N. E. Farmer.*

### DEVELOPMENT OF THE LUNGS.

Much has been said and written upon diet, eating and drinking; but I don't recollect ever noticing a remark in any, written upon breathing, or the manner of breathing. Many, and especially ladies in easy circumstances, contract a destructive mode of breathing. They suppress their breathing, and contract the habit of short, quick-breathing, not carrying half-way down the chest, and scarcely expanding the lower portions of the chest at all. Lacing the bottom of the chest, also, greatly increases this evil, and confirms a bad habit of breathing. Children that move about a good deal in the open air, and in no way laced, breathe deep and full to the chest, and every part of it. So also with out-door laborers and persons who take a great deal of exercise in in the open air, because the lungs give us the power of action, and the more exercise we take, especially out of doors, the larger the lungs become, and the less liable to disease. In all the occupations that requires standing keep the body straight. If at a table, let it be high and raised up, nearly to the arm-pits, so as not to require you to stoop; you will find the employment much easier—not one half so fatiguing—while the form of the chest and the symmetry of the figure will remain perfect. You have noticed the fact that a vast many tall ladies stoop, while a great many short ones are straight. This rises, I think, from the table at which they sit to work, or study being medium height; far too low for a tall person, and about right for a short person. This should be carefully corrected and regarded, so that each lady may occupy herself at a table suited to her, and thus prevent the possibility of the necessity of stooping.—*Dr. Fitch.*

### HOW TO CATCH A SHEEP.

In catching sheep, never seize them by the wool on the back, as it hurts them exceedingly, and has in some cases been known to kill them, particularly in hot weather, if they are large and fat. Indeed the best way is to avoid the wool althogether, and to accustom yourself to take them by the hind leg, or what is better, by the neck, placing one hand under the jaws, and the other at the back of the ears, when by lifting up the head, a child may hold almost any sheep. But much depends on how a flock is treated. Few people are sufficiently gentle with sheep. In Maryland, and south of it, sheep are rarely approached near enough to touch or catch them, except as farmers are themselves treated, in all countries, and alike by tyrants and demagogues, when they are to be *sheared or slaughtered.*

By kind and gentle usage, and occasional salting, a man may have his sheep so tame that he may play with them, as every man that has a heart will sometimes do with his dog. At any rate the feeling and thoughtful farmer, will never suffer his sheep, or any thing else under his guardianship, to be unnecessarily terrified or otherwise ill treated.—*Rural New Yorker.*

### ON THE STUDY OF BOTANY.

"To the Agriculturist, the Gardener, the Physician, and the Artist, a correct—and even scientific—knowledge of the Vegetable Kingdom is, to a certain extent, indispensable—for, a *scientific* knowledge of plants merely implies an acquaintance with their true character and properties—and *that*, every person whose business is with plants, is bound in honesty and good faith—as well by the requirement of self-interest—to possess. Such knowledge is, of course, to be best obtained by means of the most skillful, systematic, and facile method of investigation; or, in other words, by the help of a truly *scientific arrangement.*

The succesful *culture* of Vegetable Products, requires a knowledge of the character and habits of the Plants which yield them; and that knowledge—so far as it is possessed and applied—is neither more nor less than *practical Botany*. He who is acquainted with the greatest number, and best understands how to multiply the most valuable, is at once the best Botanist, and the most accomplished Agriculturist and Gardener.

Is it not desirable, then, that we should extend our knowledge of the useful Plants—and learn to estimate correctly, their true and relative values? Is it not necessary, also, that we should have a competent knowledge of the pernicious and worthless Plants? But, to accomplish this, is to make a respectable progress in the Science of *Botany.* Hence I contend, that a certain portion of Botanical knowledge is indispensable to the *Farmer* who aspires to excellence in his profession—and who would thus aid in elevating that profession to the rank which it is entitled to hold, among human pursuits. It is not necessary that he should prosecute the study in all its extent; for *that* would be the business of a life-time. But he ought to make himself acquainted with the Vegetation of the region, or district, in which he resides—and he should understand well the character of all those plants which immediately concern him, as an Agriculturist. This is a duty by no means so difficult as is generally supposed. And with the aid now afforded by elementary and systematic writers on the subject, the attainment is rendered as agreeably interesting, to an intelligent mind, as it is profitable in its practical results.—The man who does not know the more important plants by which he is surrounded—whose eye has not learnt to discriminate their characters—is deficient in one of the primary qualifications of an enlightened cultivator of the soil. In truth, it is mortifying to see a good practical Farmer, or Gardener, ignorant of some of the very plants which

it most behoves him to know—wasting his time, and his energies, in mis-directed efforts to protect himself from the vegetable pests which invade his grounds. Many of our farms are already overrun with worthless weeds, which are extremely difficult to subdue; and we are menaced with the inroads of others still more annoying and pernicious. Yet there are but few of our Agriculturists who are able to identify these invaders, when they make their appearance—or who seem to be aware of the importance of prompt and vigorous measures for their extirpation.

*This ought not to be the case, among a people* invested with the lofty privileges which we enjoy. The rising generation, at least, should be taught to notice what they see—to observe, to think, and to discriminate. Our young Farmers should learn to cultivate their *minds*, as carefully as they do their *acres;* and not be permitted to grow up in the neglect of their noblest faculties—nor—as a modern writer expresses it—be content 'to wander among the productions of Nature, with little more perception, or enjoyment of her charms, than a cow on a common, or a goose on a green.'"

* * * *

In reflecting upon the interesting character of Botanical knowledge, and upon the many inducements to acquire it—one is naturally led to ask, why a rational acquaintance with the Vegetable Products which every where surround us, and are literally strewed along our paths, should not be adequately inculcated in all our *Seminaries*—and especially I would ask, why such a humanizing and elegant Science should not be made an indispensable branch of *Female* Education. As a mere *accomplishment*, it is entitled to rank with any of those ornamental acquirements to which so much time is devoted. As a means of enlarging the views, and disciplining the mind—training it to habits of correct observation, and profitable reflection—the Study of Plants is far superior to many of the fashionable and fugitive attainments, which so generally engross the attention of young Ladies. It is a pursuit, too, which carries with it its own reward. The knowledge which it affords, is at once pleasing in the acquisition, and of enduring value. It is continually called for, and always at command—ready to minister to the instruction and gratification of the possessor—whether in the Garden, the Field, or the Forest.

"These Studies—said the Roman Orator, on another occasion,—and the averment is no less applicable here—these Studies are the intellectual nourishment of youth, and the cheering recreation of age; they adorn prosperity, and are the refuge and solace of adversity; they are pleasant at home, and are no incumbrance abroad; they abide with us by night—go with us in all our travels—and lend additional charms to the attractions of our rural retreats."

Those who make only occasional visits, or excursions, in the country, will find their pleasure greatly enhanced by an acquaintance with the Plants which mainly contribute to the charms of the scenery. But, by those whose constant residence is in the midst of the vegetable tribes, a reasonable knowledge of Botany should be regarded—not merely as an accomplishment, but—as one of the indispensable qualifications for the duties of rural life. I have already intimated the opinion, that an *American Farmer* should blush to be ignorant of the objects of his peculiar care; and I know not why a *Farmer's Wife*, or *Daughter*, should be entirely excused for a like deficiency. On the contrary, I am of opinion that it is to *Wives and Daughters* we must look, for the commencement of a salutary reformation in intellectual pursuits and discipline. The work must begin at that early period of life, when the character is being moulded under female auspices *and care. The knowledge here advocated*, is unquestionably desirable for both sexes; and I sincerely believe, that the most effectual method for diffusing it, will be—first properly to *educate*, and then—to invoke *the co-operation of the Ladies*, Their potent influence has been felt, and owned, in many a noble cause; and I cannot permit myself to doubt its controlling efficacy in this."—*Darlington's Flora Cestrica.*

### SCIENCE ANSWERING SIMPLE QUESTIONS.

Why is rain water soft? Because it is not impregnated with earth and minerals.

Why is it more easy to wash with soft water than with hard? Because soft water unites freely with soap, and dissolves it instead of decomposing it, as hard water does.

Why do wood ashes make hard water soft? 1st. Because the carbonic acid of wood ashes combines with the sulphate of lime in the hard water, and converts it into chalk; 2nd. Wood ashes converts some of the soluble salts of water into insoluble, and throws them down as a sediment, by which the water remains more pure.

Why has rain water such an unpleasant smell when it is collected in a rain water tub or tank? Because it is impregnated with decomposed organic matters, washed from roofs, trees or the casks in which it is collected.

Why does water melt salt? Because very minute particles of water insinuate themselves into the pores of the salt, by capillary attraction, and force the crystals apart from each other.

How does blowing hot foods make them cool? It causes the air which has been heated by the food to change rapidly, and give place to fresh cool air.

Why do ladies fan themselves in hot weather? The fresh particles of air may be brought in contact with their face, by the action of the fan; and as every fresh particle of air absorbs some heat from the skin, this constant change makes them cool.

Does a fan cool the air? No, it makes the air hotter by imparting to it the heat of our face, but cools our face by transferring its heat to the air.

Why is there always a draft through key holes and window crevices? Because the external air, being colder than the air of the room we occupy, rushes through the window crevices to supply the deficiency caused by the escape of warm air up the chimney, &c.

If you open the lower sash of a window, there is more draft than if you open the upper sash.

Explain the reason of this? If the lower sash be open, cold external air will rush freely into the room and cause a great draft inward; but if the upper sash be open, the heated air of the room will rush out, and of course there will be less draft inward.

By which means is a room better ventilated. By opening the upper sash, because the hot vitiated air, which always ascends towards the ceiling, can escape more easily.

Why does the wind dry damp linen? Because dry wind, like a dry sponge, imbibes the particles of vapor from the surface of the linen as fast as they are found.

Which is the hottest place in a church or chapel? The gallery.

Why is the gallery of all public places hotter than the lower parts of the building? Because the heated air of the building ascends, and all the cold air which can enter through the doors and windows, keeps to the floor till it has become heated.—*Dr. Brewer's Guide to Science.*

### SPEED OF THE HORSE.

The maximum speed of the race-horse appears to be at the rate of a mile a minute; for few, if any horses can retain the full velocity of this rate for even that time. It is said, but never was proved, that Flying Childers ran at Newmarket one mile in the minute; certain it is that this celebrated horse, when carrying nine stone two pounds, ran over the round course, which is three miles, six furlongs, and ninety-three yards, in six minutes and forty seconds. Bay Malton ran four miles at York, in 1763, in seven minutes and forty-three seconds and a half. Eclipse also ran the same distance, on the same course, in eight minutes, with twelve stone. The most extraordinary instance on record of the stoutness as well as the speed of the race-horse was displayed in 1786, when Mr. Hull's Quibbler ran twenty-three miles round the flat at Newmarket in fifty-seven minutes and ten seconds. The speed of the greyhound, and that of the hare, is but little inferior to that of the race-horse, but their powers of endurance at their utmost velocity are not equal to his.

The racing gallop is evidently but a succession of leaps, in which the fore-legs and hind-legs start in pairs, each pair acting simultaneously. The hand-gallop is not so rapid a movement; in it the right-legs are a little in advance of their fellows. It is well ascertained that a horse can never pass at once from a state of rest into the gallop of full speed, but must begin with the hand-gallop; and cunning jockeys sometimes derive profit from this circumstance by wagering with the unwary, that no horse shall be found to gallop one hundred yards while a man runs fifty, the two starting together. In this the man is sure to win the race, for the horse has not time enough to acquire the necessary momentum, as he would do if the race were for a hundred and fifty yards.

A bet against time was won in July, 1840, by an Arab horse at Bungalore, in the presidency of Madras, to run four hundred miles in four consecutive days. Mr. Frazer relates, in his "Tartar Journey," a still more striking instance of the speed and bottom of the Arab; a horse of that breed carried him from Shiraz to Teheran, five hundred and twenty-two miles, in six days, remained three at rest and went back in five days, remained nine at Shiraz, and returned again to Teheran in seven days. Another high-blooded Arabian carried Mr. Frazer from Teheran to Koom, eighty-four miles, in about ten hours. A courier, whom Major Keppell fell in with between Kermanshaw and Hamadan, places one hundred and twenty miles' distance from each other, performed that journey, over a rugged mountainous tract, in little more than twenty-four hours; and the next morning set off on the same horse for Teheran, two hundred miles further, expecting to reach it on the second day.—*English Paper.*

### VEGETATION OF THE FROZEN REGION.

*The following extract is from Seaman's* "Botany of the Voyage of H. M. ship 'Herald,' under the command of Captain Kellet," in search of Sir John Franklin. The accounts of the remarkable phenomena exhibited in those icy regions will be found new and exceedingly interesting:

"The soil is always frozen, and merely thaws during the summer, a few feet below the surface. But the thawing is by no means uniform. In peat it extends not more than two feet, while in other formations, especially in sand or gravel, the ground is free from frost to the depth of nearly a fathom, showing that sand is a better conductor of heat than peat or clay, and corroborating the observation of the accurate J. D. Hooker, who, after a series of experiments in India, arrived at the same conclusion. The roots of the plant, even those of the shrubs and trees, do not penetrate into the frozen subsoil. On reaching it, the recoil as if they touched upon a rock, through which no passage could be forced.

"It may be surprising to behold a vegetation flourishing under such circumstances, existing independent, it would seem, of terrestrial heat. But surprise is changed into amazement on visiting Kotsbue Sound, where on the tops of icebergs, herbs and shrubs are thriving with a luxurience only equalled in more favored climes. There, from Elephant to Esohholtz Point, is a series of cliffs from seventy to ninety feet high, which presents some striking illustrations of the manner in which Arctic plants grow. Three distinct layers compose these cliffs. The lower, as far as it can be seen above the ground, is ice, and from twenty to fifty feet high. The central is clay, varying in thickness from two to twenty feet, and intermingled with remains of fossil elements, horses, deer, musk-oxen. The clay is covered by peat, the third layer bearing vegetation, to which it owes its existence. Every year, during July, August and September, masses of ice melt, by which the uppermost layers are deprived of support and tumble down. A complete chaos is thus created; ice, plants, bones, peat and clay, are mixed in the most disorderly manner. It is hardly possible to imagine a more grotesque aspect. Here are seen pieces still covered with lichens and masses, there a shoal of earth, with bushes of willows; at one place a lump of clay

with senecious and polygonums, of another the remnant of the mammoth, the tufts of hair peculiar to burial places, and evidently decomposed animal matter. The foot frequently tumbles over ostealogical remains, some elephants' tusks measuring as much as twelve feet in length, weighing more than two hundred and forty pounds. Nor is the formation confined to Escholtz Bay. It is observed in various parts of Kotzbue Sound, on the River Buckland, and in other localities, making it probable that a great portion of North-western America is underneath a solid mass of ice. With such facts before us, we acknowledge that terrestrial heat exercises but a limited and indirect influence upon vegetable life, and that to the solar rays we are mainly indebted for the existence of those forms which clothe with verdure the surface of our planet.

"A curious fact is stated respecting the condition of the vegetable world during the long day of the Arctic summer. Although the sun never sets, while it lasts, plants make no mistake about the time, when if it be not night, it ought to be; but regulary as the evening hours approach, and when a midnight sun is several degrees above the horizon, droop their leaves, and sleep even as they do at sunset in more favored climes.

"'If man,' observes Mr. Seaman, 'should ever reach the pole, and be undecided which way to turn when his compass becomes sluggish, his timepiece out of order, the plants which he may happen to meet, will show him the way; their sleeping leaves tell him that midnight is at hand, and at that time the sun is standing in the north.'" —*Fitchburg Reville.*

### POISONED VALLEY.

A singular discovery has lately been made near Batten, in Java, of a poisoned valley. Mr. Alexander Loudon visited it last July, and we extract a paragraph from a communication on the subject, addressed by him to the Royal Geographical Society:—

"It is known by the name of Guevo Upas, or Poisoned Valley; and following a path which had been made for the purpose, the party shortly reached it with a couple of dogs and fowls, for the purpose of making experiments. On arriving at the mountain, the party dismounted and scrambled up the side of a hill, at a distance of a mile, with the assistance of the branches of trees and projecting roots. When at a few yards from the valley, a strong, nauseous, suffocating smell was experienced; but on approaching the margin, the inconvenience was no longer found. The valley is about half a mile in circumference, of an oval shape, and about thirty feet in depth. The bottom of it appeared to be flat, without any vegetation, and a few large stones scattered here and there. Skeletons of human beings, tigers, bears, deer, and all sorts of birds and wild animals, lay about in profusion. The ground on which they lay at the bottom of the valley appeared to be a hard sandy substance, and no vapor was perceived. The sides were covered with vegetation. It was proposed to enter it; and each of the party having lit a cigar, managed to get within twenty feet of the bottom, where a sickening, nauseous smell was experienced, without any difficulty of breathing. A dog was now fastened to the end of a bamboo and thrust to the bottom of the valley; while some of the party, with their watches in their hands, observed the effect. At the expiration of fourteen seconds he fell off his legs, without moving or looking around, and continued alive only eighteen minutes. The other dog now left the party and went to his companion. On reaching him, he was observed to stand quite motionless; and at the end of ten seconds fell down; he never moved his limbs after, and lived only seven minutes. A fowl was now thrown in, which died in a minute and a quarter; and another, which was thrown in after it, died in the space of a minute and a half. A heavy shower of rain fell during the time that these experiments were going forward, which, from the interesting nature of the experiments, was quite disregarded. On the opposite side of the valley to that which was visited, lay a human skeleton, the head resting on the right arm. The effect of the weather had bleached the bones as white as ivory. This was probably the remains of some wretched rebel hunted towards the valley who had taken shelter there, unconscious of its character.

### CONDENSED HISTORY OF STEAM.

About 28 years B. C., Hero of Alexandria formed a toy which exhibited some of the powers of steam, and was moved by its power.

A.D.450, Anthemius, an architect, arranged several cauldrons of water, each covered with the wide bottom of a leathern tube, which rose to a narrow top, with pipes extended to the rafters of the adjoining building. A fire was kindled beneath the cauldrons, and the house shaken by the efforts of the steam ascending the tubes. This is the first notice of the power of steam recorded.

In 1543, June 17, Blasco D. Garoy tried a steamboat of 209 tons with tolerable success at Barcelona, Spain. It consisted of a cauldron of boiling water, and a moveable wheel on each side of the ship. It was laid aside as impracticable. A present, however, was made to Garoy.

In 1650 the first railroad was constructed at Newcastle on Tyne.

The first idea of a steam engine in England was in the Marquis of Worcester's "History of inventions," A.D. 1663.

In 1710 Newcomen made the first steam engine in England.

In 1718 patents were granted to Savery for the first application of the steam engine.

In 1734 James Watt made the first perfect steam engine in England.

In 1736 Jonathan Hulls set forth the idea of steam navigation.

In 1778 Thomas Paine first proposed this application in America.

In 1781 Marquis Jouffroy constructed one on the Saone.

In 1785 two Americans published a work on it.

In 1789 William Symington made a voyage in one on the Forth and Clyde canal.

In 1802 this experiment was repeated.

In 1782 Ramsey propelled a boat by steam at New York.

In 1787 John Fitch, of Philadelphia, navigated a boat by a steam engine on the Delaware.

In 1793 Robert Fulton first began to apply his attention to steam.

In 1793 Oliver Evans, a native of Philadelphia, constructed a locomotive steam engine to travel on a turnpike road.

The first steam vessel that crossed the Atlantic was the Savannah, in the month of June, 1819, from Charleston to Liverpool.—*Hunt's Merchant's Magazine.*

### CURRANT WINES.

As currants, in many places, will soon be ripe, we give the following receipt for making wine from them, believing that, in cases of sickness, it is very excellent:—Gather the currants when fully ripe; break them well in a tub, press them through a sifter, then strain them through a flannel bag, and measure the juice; add two gallons of water to one of juice, put three pounds of New Orleans sugar, stir it till the sugar is quite dissolved. In straining the juice of the currant, use a hair sieve, and not one of wire; then use a close tow linen bag, afterwards a flannel one to pass the juice through. The juice must not be permitted to stand over night. Observe that the cask be sweet and clean, and such as has never been used for beer or cider, and, if new, let it be well seasoned. Do not fill the cask too full, otherwise it works out the bung, which is injurious to the wine; rather make a proportionate quantity over and above, that, drawing off some of the wine, you may have enough to fill up the cask. Lay the bung lightly on the hole, to prevent flies, &c., from creeping in. In three or four weeks the bung hole may be stopped up, leaving only the vent hole open till it has done working, which is generally the middle or last of October. It may then be racked off; it is best to leave it on the lees till spring, and, if not wanted for present use, it may be left on the lees for two years without damage. When drawing off, bore a hole an inch at least from the tap hole, and a little to one side of it, that it may run off clear of the lees.

Black currant wine is also excellent in cases of sickness, such as for diseases of the bowels.

### IMPROVEMENTS IN BUTTER FIRKINS.

Butter firkins, as at present constituted, require to be sawn horizontally through the centre, or the head removed, in order to obtain the butter, which is liable to be injured from the consequent exposure to the air. As an improvement on the above, a new method has been invented by Daniel Minthorn, of Watertown, N. Y., who has taken measures to secure a patent. The firkin is made to consist of two parts, which are connected together by means of a taper flange on the core of the one, which fits into a corresponding recess cut into the edge of the other, the two parts being kept firmly together with hooks or any other suitable fastening. The great advantage of a firkin of this description is, that small quantities of butter can be taken out when required, and the firkin afterwards closed air-tight, which renders it superior to those of the ordinary construction for family use; moreover the firkin can be used repeatedly for the same purpose until completely worn out.—*Sci. American.*

### THE RIND OF FRUIT INDIGESTIBLE.

This fact cannot be two strongly impressed upon the public. It applies to all fruit, without exception, and includes also, the pellicle or skin of kernels and nuts of all kinds. The edible part of fruit is particularly delicate, and liable to rapid decomposition if exposed to the atmosphere; it is, therefore, a provision of nature to place a strong and impervious coating over it, as a protection against accident, and to prevent insect enemies from destroying the seed within. The skin of all the plum tribe is wonderfully strong, compared with its substance, and resists the action of water and many solvents in a remarkable manner. If not thoroughly masticated before taken into the stomach, the rind of plums is rarely, if ever, dissolved by the gastric juice. In some cases, pieces of it adhere to the coats of the stomach, the same as wet paper clings to the bodies, causing sickness and other inconvenience. Dried raisins and currants are particularly included in these remarks, showing the best reasons for placing the fruit upon the chopping board with the suet in making a pudding of them, for if a dried currant passes into the stomach whole it is never digested at all. When horses eat oats or beans that have not been through a crushing mill, much of this food is swallowed whole, and in this state, being perfectly indigestible, the husk or pellicle resisting the advents of the stomach, there is so much loss to nutrition. Birds, being destitute of teeth, are provided with the apparatus for grinding their seed, namely, with the gizzard, through which the seed passes, and is crushed prior to digestion. The peels of apples and pears should always be cast away. Oranges we need not mention as this si always done. Orleans, greengages, damsons, and all plums, should be carefully skinned if eaten raw, and if put into tarts, they should be crushed before cooking. Nuts are as indigestible as we could desire, if the brown skin be not removed or blanched as almonds are generally treated.

### PAINT FOR BRICK HOUSES.

A correspondent of the Ohio *Farmer* has used a cheap and very durable paint for the exterior of brick dwellings, which has already stood several years, and is now quite as fresh as when first applied. It consists simply of whitewash, with sulphate of zinc as a fixing ingredient. Any requisite shade is given by adding the colors used by house-painters.—A clear and rich cream color may be obtained by applying yellow ochre to the common new brick; a livelier and warmer shade will be added by a little Venetian red. Burnt sienna may likewise be used. This paint is far cheaper than oil paint, costs but little more than common whitewash, and nothing will remove it but the severest friction.

CHURNING.—Butter should always be churned in a room or apartment, the temperature of which is between thirty and sixty degrees. At sixty degrees, butter is obtained in the greatest quan-

tity, and at about fifty-two degrees, of the best quality. To those interested in dairy management, these facts are of the highest practical importance. A thermometer should always be suspended in the dairy or milk room, and all the operations regulated by it.

### STEAM ENGINES ON FARMS.

A steam engine might profitably be fitted up on many farms. The application of steam power on farms is yet in its infancy; and it is objected to by many, that for the purpose of small farms it *is unnecessary and expensive; but on those* consisting of 800 to 1000 acres or upwards, it is recommended. The number of operations that can be so readily performed at one time with the aid of proper machinery—the great dispatch—the amount of work that can be accomplished—and the small cost of the sustaining power, being that of a few bushels of coals per diem, are facts too important not to attract the attention of every scientific farmer.

### SHINGLE MACHINE.

Measures to secure a patent for an improved Shingle Machine have been taken by Samuel Bell, of South Hanover, Indiana. There are several improvements on this machine, which is intended to cut shingles to a shape superior to those generally used.—The form of the shingle is one of the specified improvements, and its merit consists in making the shingle of an equal thickness for one-third of its length, the remaining two-thirds being tapered, as to its thickness, to a point, which is effected by shaving down the under side, or that side of the shingle which is not exposed to the weather.

A sliding frame carries the splitting knife and also the first shaving knife, up to the block of wood which is to be formed into shingles. The shape of the splitting knife is peculiar, the cutting edge being concave, so that the edges of the shingle are split before the middle part, a plan which requires less power and works better. The before-mentioned sliding frame or carriage is worked by means of a double crank, which also serves to impel an apparatus for clearing away the shavings from the first shaving knife and works a vibrating ram that moves the shingle forward to undergo the finishing process, which is accomplished by using two rollers, one of which performs one of the three offices of pressing, feeding, and cleaving; the other roller is shaped in a peculiar manner, being made concentric for one-third of its diameter, and the remaining two-thirds increasing in size in the form of an involute curve: in fact it has an eccentric motion, so that the shingle, being forced along between this roller and the finishing knife, is formed to the shape described. Two other rollers then remove and deliver the finished shingle.

The inventor mentions other ingenious substitutes for the eccentric roller just described, and has many excellent arrangements for the various requirements of the machine.—*Sci. American.*

### THE SABBATH.

"The rest of the Sabbath is as necessary after the engagement of the week, as is the night's rest after the work of the day. To the one we go instinctively, forced by fatigue. It is well if we observe the other; impelled by moral consideration, before suffering the penalty attached to its violation, of which no instinct gives us warning. After six days of labor our strained muscles need a season to renew their elasticity—our irritable nerves to recover their normal state—our fretted spirits to resume their equanimity. A simple change of necessary labor does a great deal; the entire cessation of all that is unnecessary does still more. The fitting devotional exercises of the day are calling and soothing, and productive of that healthy state of mind with which it is desirable to enter upon the honest duties of the succeeding day. The influence of the Sabbath on the week's tumultuous cares, is like oil poured on a stormy sea. Stretched out over the hurrying crowd of daily engagements, like the road of the Prophet over the Red Sea, it piles the waves up on either side, and we pass through them dry-shod.

> "O day, most calm, most bright!
> The fruit of this, the next world's bud!
> The endorsement of supreme delight,
> Writ by a friend and with his blood;
> The couch of time; care's balm and bay—
> The week were dark but for thy light;
> Thy torch doth show the way."

REMEDY FOR CANCER.—Col. Ussery, of the parish De Soto, informs the editor of the *Cuddo Gazette* that he fully tested the remedy for this troublesome disease, recommended to him by a Spanish woman, a native of the country. The remedy is this: take an egg and break it; pour out the white, retaining the yolk in the shell; put in salt; and mix with the yolk as long as it will receive it; stir them together until a salve is formed; put a portion of this on a piece of sticking-plaster, and apply it to the cancer about twice a day. He has tried the remedy twice in his own family with complete success.

A CHEAP FILTER.—As efficient a filter as can possibly be constructed may be made in a few minutes by any person, and at the cost of a few pence. Procure a clean flower pot of the common kind, close the opening in the bottom by a piece of sponge, then lay in the inside a layer of small stone, previously well cleansed by washing, this layer may be about two inches deep, the upper stones being very small; next procure some freshly burnt charcoal, which has not been kept in a damp or foul place, as it rapidly absorbs any strong smells, and so becomes tainted and unfit for such purpose; reduce this to powder, and mix *it with twice its bulk of clear, well washed, sharp* sand; with this mixture fill the pot to within a short distance of the top, covering it with a layer of small stones, or what is perhaps better, place a piece of thick flannel over it, large enough to tie round the rim of the pot outside, and to form inside, into which the water to be filtered is to be poured, and which will be found to flow out rapidly through the sponge in an exceeding pure state. The flannel removes the grosser impurities floating in the water, but the latter absorbs much of the decaying animal and vegetable bodies actually dissolved in it; when it becomes charged with them it looses this power, hence the necessity for a supply of fresh charcoal at intervals.

## Poetry.

### LIFE'S HARVEST.

BY WILLIAM EDWARD KNOWLES.

Ho, reaper of Life's Harvest,
Why stand with rusted blade,
Until the night draws round thee,
And day begins to fade?
Why stand ye idle waiting
For reapers more to come?—
The golden morn is passing,—
Why sit ye idle, dumb?
Thrust in your sharpen'd sickle,
And gather in the grain;
The night is fast approaching,
And soon will come again,

Thy Master calls for reapers,
And shall he call in vain?—
Shall sheaves lie there ungathered,
And waste upon the plain?
Come down from hill and mountain,
In mornings ruddy glow,
Nor wait until the dial
Points to the noon below.
And come with strong sinew,
Nor faint in heat nor cold;
And pause not till the evening
Draws round its wealth of gold.

And mount the crumbling watch-towers,
And herald on the truth;
Preach out the golden precepts,
To wild and wayward youth,
Mount up the heights of Wisdom,
And crush each error low;
Keep back no words of knowledge
That human hearts should know.
Be faithful to thy mission,
In the service of thy Lord:
And then a golden chaplet
Shall be thy just reward.

## EDITOR'S NOTICES.

### POSTMASTERS AND SUBSCRIBERS.

In consequence of complaints having been received, of Postmasters exacting postage for the *Agriculturist;* we would, for their future guidance observe, that by the special permission of the Post Master General, the *Agriculturist* is transmitted to Subscribers FREE OF CHARGE.

### THE PROVINCIAL EXHIBITIONS OF UPPER AND LOWER CANADA.

We request our readers to notice that a Grand Provincial Exhibition will be held at Montreal, on the 27th, 28th, 29th and 30th, of September next, under the auspices of the *Agricultural Association of Lower Canada.* From the efforts and arrangements that are being made, and the highly advantageous situation of Montreal for such a purpose, there can be no doubt of the success of the undertaking.

The Annual Exhibition of the *Agricultural Association of Upper Canada,* will take place this year, in the City of Hamilton, the week following the Montreal Show, viz:—October 4th, 5th, 6th and 7th.—An efficient Local Committee has been for some time in active operation; tenders for fencing, buildings, &c. have been taken, and from the situation of Hamilton, which is so easily accessible from all parts of the Province, and the general interest hitherto manifested in this annual gathering, the forthcoming display of the industrial products of Upper Canada, it may be safely assumed, will not be inferior to previous occasions.

It should be distinctly understood that according to the provision of the present Agricultural Statute, *both Exhibitions will be open to competition, from all parts of United Canada.*

Premium lists, containing rules, regulations &c., for either Exhibition can be had by applying to the Secretary of the Board of Agriculture of U. C. in Toronto.

### VENTILATING RAILWAY CAR.

We clip the following from the *Daily Rochester Union* of July 19th, and are glad to see that the inventions of our enterprising countryman, Mr. Ruttan, is beginning to be understood and appreciated in the States as well as on this side of the lines. Mr. Ruttan has received from men of the highest standing and attainments residing in different parts of the Union, highly complimentary testimonials of the value and efficiency of his mode of ventilating and warming buildings, wherever it has been properly adopted. The application of the system to railway carriages, especially in a climate like that of North America, is of the greatest importance, and cannot fail to promote, in a high degree, the comfort and health of the travelling community:—

"We had the pleasure, a few days since, of riding from Rochester to Syracuse in a car in which was used the patent ventilator. And it was, indeed, a pleasure thus to ride, after having been exposed to the intolerable heat and dust in an ordinary car. The ventilator enabled us to keep the car entirely closed, and thus prevented the ingress of dust, cinders, sparks and smoke, while, at the same time, there was a perfect circulation of pure, cool air, rendering every one comfortable. The only wonder is that any of the other kinds of cars are in use. This ventilator has been tried since last winter, and has been found to work admirably. In cold weather it regulates the heat, keeping an even temperature in every part of the car.

"Travelling by railroad, in summer time, is almost intolerable, on account of the dust which fills the car. We think, therefore, that the management owe it to the public to adopt every well tested improvement, which do away with or lessen the evil. The ventilator in question, we are convinced will most effectually, and it ought to be introduced into general use.—*Buffalo Daily Courier.*

"We believe the car above alluded to is ventilated on the plan of Mr. Ruttan, of Cobourg,

Canada West, Sheriff of Newcastle District.—This is not the first disinterested testimonial that we have seen bestowed upon this car It is but just to Mr. Ruttan, that the inventor or discoverer be known. He is a gentleman who has paid much attention to the subject of ventilation, but does not seem to seek any notoriety in connection with his discoveries. Should the method of ventilation, adopted by Mr. R., fall into the hands of some shrewd, money-making Yankee, it would soon be applied successfully to every railway car in America."

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REPORT OF THE AGRICULTURAL SEMINARY OF TEMPLEMAYLE IRELAND.

We are indebted to the courtesy of the Canadian Agricultural Commissioner,—Mr. KIRKWOOD, who is now in Belfast, for a copy of this document.

THE JOURNAL OF THE CHEMICO AGRICULTURAL SOCIETY OF ULSTER: Belfast, June, 1853.

We thankfully acknowledge the receipt of this valuable periodical for June, and shall be happy to receive it regularly in exchange. A lengthened notice of the Society under whose auspices it is published, will be found in our first article. We shall refer more at length to this publication in our next.

MINER'S DOMESTIC POULTRY BOOK: Rochester N. Y:—G. W. Fisher; 1853.

We are indebted to the Publisher for a copy of this valuable work. It is a treatise on the history, breeding and general management of foreign and domestic Fowls, and is evidently written by a person who has had much personal experience in such matters. The author has been quite successful in giving the opinions and facts of other writers in a condensed and intelligible form, in connection with his own original and important observations. Taken althogether this is unquestionably the best, and by far the cheapest publication on the subject, that has issued from the American press. It consists of upwards of 250 pages and is illustrated by more than 100 well executed cuts; indicating the characteristic features of the various breeds, &c., and is sold for the marvellously low price of Half a Dollar! We know of no better or more suitable present, which a farmer would make his wife, than Miner's Poultry Book.

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CURRANT WINE.

A Stratford subscriber will find the following Receipt for making Currant Wine, both easy and effectual:—

Let your currants be ripe, mesh them with your hands, and to every quart of pulp had three pints of water. Mix them well together, and let them stand till they have done fermenting, then strain them through a hair-sieve, and to every gallon put four pounds of moist sugar. When the sugar is perfectly melted, put the liquor in a cask with a little dissolved isinglass. To every ten gallons, add one pint of brandy; bring it up, and let it remain one year, then bottle it.

W. R., COBOURG.—Your communication arrived too late to receive that attention in the present number, which the enquiries it contains seems to us to require,

J. W, CARLETON.—The questions you mention, shall receive our best attention as soon as we have leisure for the purpose. The last of them would receive no simplification by a mere dogmatic answer. The present advanced state of science even, is often wretchedly inadequate to explain many natural phenomena. We must patiently wait, in the spirit of faith, on the ever operating principle of progress.

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## THE WEATHER, CROPS, AND MARKETS.

The drought still continues, only one or two showers having occurred in this neighbourhood since our last publication. Spring and root crops must inevitably prove short; although potatoes in some localities continue to look well. Early sown grain, of course, has the best chance. From *all that we can learn, the* Fall Wheat crop will prove above an average, but Spring Wheat must fall short. To the eastward there are some complaints of smut and weevil, but we hope nothing very serious will be actually experienced. From some of the Western States we learn that these depredations are extensive and destructive although we are inclined to think that the wheat crop over the whole of this Continent will be found abundant. In the Western section of this Province much of it is already secured in prime condition, and such is the present state of the weather that harvest operations in the more backward districts will be greatly expedited. Hay has proved an average crop, and in some places, from a scarcity of hands, the crop is not yet wholly secured. Farmers experience much difficulty, in most districts, in getting workmen even at greatly advanced wages. The same is the case with builders and other trades. The activity now pervade ing all branches of industry was never before paralleled in Canada. This happy state of things must no doubt be traced, in some considerable degree, to the extensive railway schemes now in actual progress,

TORONTO MARKETS.

FIRST LOAD OF NEW WHEAT.—Mr. Robert Northard living on lot No. 19, Etobicoke Township, on Friday last delivered the first load of new wheat which has appeared in Toronto market this season, and which was purchased by Messrs. Gooderham & Worts at six shillings and three pence per bushel. A dollar has been usually paid by this firm for many years past, or the first load, but this year prices being much above the usual prices paid, they have advanced their price to 6s 3d. It is a beautiful article of white wheat, and fit for milling. Last year the first load was delivered on July 27. New wheat has, as our readers are aware, been in the markets west of us for some days. their havest being a little in advance of that in the neighborhood of Toronto.

Farmers in the neighbourhood of Toronto are now in the harvest field, in the midst of their golden grain. Every day of fine weather is considered a blessing, (and they have had many o them this year) which is to be taken advantage of.

Our markets are consequently not over-crowded, and prices generally rule high. The following is from "Heward's Circular," of the 23rd inst., and may be relied on:—

FLOUR since my last Circular has undergone considerable change. The reports of bad weather and prospects of war per 'Arabia' and 'Franklin' caused much excitement. Prices advanced here from 19s. 6d. a 22s. 6d. Several sales took place at prices ranging between these figures; and this day a speculative purchase was made of 3,000 barrels of rehable fresh ground at 22s 5d f.o.b., the market for old ground now stands at 21s 9d. f.o.b. with limited enquiry, the news per 'Europa' being somewhat unfavourable in tone. The stock of flour is light and must continue so, with the present marketable value for wheat for shipment in bulk, as mills cannot manufacture to save themselves.

WHEAT.—The high price, notwithstanding harvest having commenced, encourages fair deliveries, say 2,000 bushels daily, at prices from 4s. 9d. a 5s. 2d.; fair merchantable wheat by cargo would sell at 5s. f.o.b.; all accounts agree that the new crop coming in is in excellent condition and good yield. Markets thinly supplied with other descriptions of grain.

STOCKS.—Bank of Upper Canada—sold during the week from 10¼ premium.

Bank of Montreal inactive at 24 prem.

City Bank of Montreal has been sold at 5¼ prem.

Commercial Bank—sales 14 prem.; now asking 15.

In other stocks little doing.

Bank Exchange on London, England, 11; New York, ¾; Montreal, ¼.

LIVERPOOL CORN MARKET.

LIVERPOOL, Saturday, July 9, 1853.

Breadstuffs, during the early part of the week, were extremely excited, but more favorable accounts of the weather in France checked speculation. There is less firmness in prices, Wheat having declined 1d. to 2d., Flour 6d. to 9d., from the extreme point of prices two days since. White American Wheat is quoted 7s. 6d. to 8s.; red and mixed, 7s. 6d. to 7s. 6d. Western Canal Flour 26s. 6d. a 27s.; Baltimore, Philadelphia, and Ohio, 27s. a 27s. 6d., Sour, 22s. a 21s. Indian Corn in better request at an advancement of 6d. a 1s. White, Yellow, and Mixed, range from 31s. a 32s. Denniston & Co. and others quote White a 32s. a 32s. 6d. Mixed and Yellow, 31s.

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Periodical applications of ashes tend to keep up the integrity of soils by supplying most, if not all, the inorganic substances.

The Oswego *Times* says that the progress of Upper Canada, especially in Railway enterprises, is almost without a precedent, and in a few years that section of the country will be one of the finest and most productive in the world.

MOWING MACHINES.—Mr. Thomas Tomlinson, of Oshawa, is having his grass cut this season with one of Ketchum's Mowing Machines. The *Freeman* says it costs him no more than the *board* of laborers would by the job, in the ordinary way of mowing with scythes. One man with a span of horses cuts from 10 to 15 acres per day.

PRECAUTION AGAINST FIRE.—In the course of an inquest, in London, lately, Mr. Wakley, the Coroner, observed that it would be well to acquaint the public with the fact, that if persons in a house on fire had the presence of mind to apply a damp cloth or handkerchief to their mouth and nostrils, they could effect a passage through the densest smoke; but the surest mode would be to envelope the head and face completely in the damp cloth.

BEAUTIFUL SPECIMEN OF AMERICAN NEEDLE WORK.—We were shown on Saturday evening, at the Hudson River Railroad station, at Thirty-first street, a specimen of needle-work, that for delicacy of shading in colors of flowers, and beauty as well as artistic skill of workmanship, we have never seen excelled, and doubt whether it will be so in the great show.—The article is a large sized table cover, crimson woolen, with centre-piece and border. It was worked by Miss Helen Hageboom, of Castleton, Rensselaer Co., N. Y., who devoted her leisure hours during two years, to produce this finished specimen of an American lady's taste and skill: a much more creditable disposition of idle time than devoting it to the perusal of "yellow-covered literature."—*New York Tribune.*

The chopping and grinding of grain to be fed to stock operates as a saving of at least 25 per cent.

RESTITUTION.—The Washington County *Post* says a chap in a certain village, with whom he is acquainted, having had sanded sugar sold to him, inserted in the weekly paper the following notice:—"I purchased of a grocer, in this village, a quantity of sugar, from which I obtained *one pound of sand.* If the rascal who cheated me will send to my address seven pounds of good sugar, (Scripture measure of restitution) I will be satisfied; if not, I will expose him." On the following day, nine seven-pound packages of sugar were left at his residence from as many different dealers, each supposing himself the person intended.

A SINGULAR EDITORIAL ACHIEVEMENT.—We yesterday witnessed the accomplishment of a feat at once daring and dangerous, which has created no little wonder among the fashionable residents at the hotels of our village. We allude to the Leander-like achievement of swimming the Niagara and recrossing, at a short distance below the cataract, which was performed by J. V. Thomas, Esq., the highly talented editor of the Brooklyn Daily Advertiser, a gentleman well known by his contributions to several of our most popular magazines. Having swam from the American to the Canadian side of the river, after a rest of a few minutes, he again entered the water, and succeeded in reaching the American shore. As might be supposed, the performance of such an undertaking was attended with no inconsiderable danger, and had we not really witnessed the occurrence, we should not have believed the feat could have been accomplished.—*Niagara Iris.*

ICE A CURE FOR CHOLERA.—J. E. Snodgrass, M.D. of New York, writing under date the 24th ult., to the *Tribune* makes the following remarks in reference to the use of ice in Cholera:—

SIR: Guided more by my personal experience, as an annual victim of that very common though very worrying and prostrating malady, Cholera Morbus, the season for which is now upon us, rather than any observation of it, of late years, during which I have had but little to do with general practice, I have come to the conclusion that the remedy for it is ice. Not "ice water," nor even ice taken into the mouth to melt and find its way into the stomach as water, but crushed ice swallowed, or Ice Pills, if you please.

The primary seat of this disease is the stomach. There the intense thirst and disagreeable bitterness, characteristic of Cholera Morbus, originate, although experienced in the mouth. There the ice should be applied, with the view to absorbing the morbid excess of caloric, or heat. Iced water, by its greater bulk, distresses the stomach, while the ice itself, applied directly to the part affected—swallowed in small lumps, not suffered to trickle down—relieves it, almost certainly.

Persons taking these Ice Pills, as I have called them, to indicate that the secret of the remedy proposed lies in the form and mode of its administration rather than in the remedy itself, which is really nothing new, are sometimes alarmed by the "shock" experienced in the stomach. This is produced by the rapid loss of morbid heat, and is therefore nothing to be alarmed at, but is favorable, to the contrary. There need be no fear. Let the ice be taken freely, and it will scarcely never fail to give relief, without the aid of any other medicine whatever.

I am aware that advice unasked is too usually, advice unthanked; but I feel that the above fact should be generally known, and therefore I make no apology for taking up the brief space required for its statement.

## Poetry.

### WHAT IS HOME?

BY CHARLES SWAIN.

Home's not merely four square walls,
Though with pictures hung and gilded;
Home is where Affection calls—
Filled with shrines the heart hath moulded!
Home!—go watch the faithful dove,
Sailing 'neath the heaven above us—
Home is where there's one to love us!

Home's not merely roof and room,
It needs something to endear it:
Home is where the heart can bloom,
Where there's some kind ho to cheer it!
What is home, with none to meet?
None to welcome, none to greet us?
Home is sweet—and only sweet—
When there's one we love, to meet us!

## ADVERTISEMENTS.